**Design Document for Cursor/Windsurf: YEARS OF LEAD**

This document contains the full systemic, narrative, and mechanical design overview for *Years of Lead*, a complex turn-based insurgency simulator rooted in historical revolutionary tactics, faction dynamics, and symbolic-narrative interplay. It has been revised to be compliant with Claude's usage restrictions. All military or controversial content is framed within political simulation and narrative systems context, with emphasis on systemic critique, moral complexity, and symbolic mechanics.

🔍 **SYLVA & WREN Integration**

* **SYLVA** is the *Symbolic Yield Logic & Variant Architecture*, an emotional wellness and storytelling API developed to support interactive narrative reasoning and psychological scaffolding. It enables symbolic-level interpretation of player decisions and supports emotional regulation modeling through layered narrative loops.
* **WREN** is the *Worldbuilding Reflective Engine for Narrative*, designed to create symbolic roleplay encounters, therapeutic character arcs, and emotional resonance through simulated language states. It incorporates emotionally relevant feedback loops, trauma-informed design cues, and adaptive storytelling responses.
* Both systems are under development by the *Forest Within* initiative as part of a broader emotional-wellness AI ecosystem.
* Within *Years of Lead*, they can be integrated for:  
  + Internal symbolic dissonance arcs
  + Dream logic and narrative dissociation events
  + Realistic emotional responses from cadre and factions
  + Procedural manifesto generation and psychological reflection modules
  + Adaptive player journaling and guided emotional decompression
  + Psychosocial loyalty and betrayal metrics

🎯 **MECHANICAL EXPANSIONS**

1. **Faction Diplomacy and Turf Wars**
   * Factions include: Centrist Think Tanks, Radical Anarchists, Corporate Lobbies, Religious Militias, Separatist Syndicates.
   * Features: Alliances, betrayals, ceasefire negotiations, shared ops, controlled leaks, and coordinated suppression events.
3. **Heat Management & Underground Networks**
   * Heat tracked per district, per individual, per public action.
   * Tools: Burners, dead drops, underground tunnels, safehouses, clergy/sympathizer roles, and rotating identities.
   * Cells can go dark for a set number of turns, losing operational access but avoiding scrutiny.
5. **Enhanced Sleeper Agent Gameplay**
   * Sleepers assigned to banks, law firms, universities, and government agencies.
   * Operations: Slow-burn sabotage, false leak networks, whistleblower timing triggers, administrative stonewalling.
   * Risk mechanics: Psychological strain, exposure events, loyalty decay.
7. **Protest Engineering and Crowd Psychology**
   * Chants, protest routes, costumes, signs, ambient music.
   * Elements: Counter-protester logic, police morale, media optics, leadership presence.
   * Public reaction shaped by protest aesthetics and effectiveness.
9. **Tech Warfare**
   * Tools: Bots, forgery software, meme propagation systems, disinformation injectors.
   * Mechanics: Cybernetic heat, social graph infiltration, narrative framing conflicts.
   * Digital morale dynamics: Forum response, state censorship escalation, encryption protocol evolution.

🧠 **NARRATIVE & WORLD EXPANSIONS**

1. **Procedural Ideologies and NPC Agendas**
   * All major roles—judges, cops, politicians, journalists—develop dynamic beliefs.
   * Belief evolution influenced by player actions, faction operations, and historical flashpoints.
   * NPCs may defect, radicalize, sabotage institutions, or become long-term allies or enemies.
3. **Dynamic News System**
   * Simulates national and regional outlets, with various editorial stances.
   * Players may manipulate coverage, seed rumors, or attack journalists (at reputation cost).
   * Shifting Overton Window logic tied to cumulative world state.
5. **Underground Cultural Movements**
   * Factions: Punk scenes, queer art collectives, academic counter-cliques, mutual aid guilds.
   * Engagement: Host underground readings, pop-up libraries, spoken word salons.
   * Mechanics: Cultural loyalty, artistic resonance score, resistance myth-making.

**9. Prison Resistance & Covert Communications**

* Jailed characters retain influence: encoded messages, lawyer networks, smuggled microfilm, contraband.
* Outside support: letter campaigns, legal defense funds, hunger strike pressure campaigns.
* Inside operations: coded newspapers, cell transfers, intimidation of informants, leadership succession.
* Inspired by Stammheim RAF, FALN, and broader global patterns of resistance leadership from incarceration.

**10. Advanced Cadre Protocol Systems**

* Recruitment risk flags: signs of instability, susceptibility to infiltration, vetting chain-of-custody.
* Counter-surveillance routines: daily sweep tasks, identity obfuscation, layered information access.
* Cell-level protocols: firewalled knowledge, deadman’s switches, low-tech signal redundancy.

**11. Intelligence Ecosystem Simulation**

* Includes both domestic agencies and foreign interference actors.
* Timeline-based infiltration trees: agent placement, handler reports, compromised internal affairs.
* Player-facing tradeoffs: accept aid at cost of ideological compromise or exposure.

**12. Psychological Modeling Layer**

* Cadre and player psychological states influenced by sleep, guilt, ideology, trauma.
* Symbolic integration with SYLVA/WREN for dream sequences, moral dilemmas, breakdown or transcendence arcs.
* Can be triggered narratively or mechanically (e.g. failed torture resistance, burnout).

**13. Post-Revolution Transition Systems**

* Simulate fractured success scenarios: pluralist transitions, junta betrayal, ideological drift.
* Paths include failed state, worker’s council governance, or cultural revolution with ongoing factionalism.

**14. Game Modes**

* Sandbox: emergent storytelling, no fixed win state.
* Scenario: recreate historical events with alternate paths (e.g. 1970s Italy, Chile, Greece).
* Iron Path: permadeath, irreversible loss, high pressure insurgency over decades.

**15. Multiplayer and Asynchronous Ops (Expansion)**

* Players run rival or allied factions on the same island.
* Shared propaganda space, economic manipulation, competitive recruitment.
* Optional: web-based narrative forums for in-character ops planning and psychological warfare.

## ***🧩* YEARS OF LEAD – SYSTEM ARCHITECTURE BLUEPRINT**

### **🌐 Core Simulation Loop (Turn Engine)**

Each in-game day is split into 4 phases:

1. **Morning**
2. **Afternoon**
3. **Evening**
4. **Night**

Each **cadre member** or **agent** may perform 1 major task per phase.

**Turn Resolution Order**:

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1. Resolve Scheduled Player Actions

2. Trigger Opponent/AI Faction Tasks

3. Process World Events (heat, morale, economic conditions)

4. Update Surveillance / Infiltration Trees

5. Advance Psychological + Narrative Systems (SYLVA/WREN hooks)

6. Generate News / Public Reaction

7. Apply Economic & Logistics Calculations

8. Record Logs / Debriefing Events

### **🧠 Major Modules (Simulation Systems)**

Each connects to and modifies game state via standardized APIs:

| **System Module** | **Trigger** | **Input** | **Output** | **Notes** |
| --- | --- | --- | --- | --- |
| Cadre Ops | Player | Orders | State changes, risks | Stealth, protest, recruitment, sabotage |
| Surveillance/Counterintel | Auto+Player | Triggers, heat, exposure | Agent placement, busts, paranoia | FBI/Police AI routines |
| Psychological Engine (WREN) | Phase-based | Morale, trauma, ideology conflict | Loyalty, burnout, betrayal | Uses SYLVA symbolic modeling |
| Political/Public Opinion | Phase-based | News events, action outcomes | Policy shifts, election results | Affect referendum tracks |
| Cyber Warfare | Player | Targets, agents, gear | DDoS, leaks, propaganda | Raises digital heat |
| Crafting & Logistics | Player | Items, plans, labor | Equipment & capabilities | Based on schematic trees |
| Faction Diplomacy | Player/AI | Proposals, status, credibility | Shifts in alliances, sabotage | Tracks faction goals & motives |
| Government Response | Global | Heat, press, economic status | Policy state, crisis level | Leads to fascism/liberalization paths |
| Prison Resistance | Passive + Orders | Captured operatives | Communication, uprising chance | Lawyer & contraband mechanics |

### **📦 Data Objects & Entities (to define in next step)**

* **CadreMember**: stats, ideology, loyalty, specialty, trauma
* **Cell**: secrecy level, known ops, protocols
* **Faction**: ideology, resources, aggression, alliance map
* **District**: unrest, heat, resources, infrastructure
* **Event**: timestamped, narrative hook, triggered reaction
* **Government**: current policy set, awareness, pressure tracks
* **Inventory**: crafting parts, funds, armaments
* **Task**: structured action objects with inputs/outputs

### **🔁 SYLVA/WREN Integration Points**

* Dream sequences or hallucination overlays triggered by trauma thresholds
* Symbolic scoring for manifestos, speeches, public statements
* Loyalty modulation based on narrative dissociation or meaning-making
* Emotional journaling or ritual events for players & cadre

### ***🧱* CadreMember *Object Definition***

#### **Overview**

The CadreMember represents an individual revolutionary agent, with persistent identity, psychological state, loyalty, skills, affiliations, and operational history.

#### **JSON Schema (v1)**

json

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{

"id": "string",

"name": "string",

"aliases": ["string"],

"age": "integer",

"gender": "string",

"background": "string",

"ideology": "string",

"skills": {

"combat": "integer",

"infiltration": "integer",

"rhetoric": "integer",

"medicine": "integer",

"propaganda": "integer",

"cyber\_ops": "integer",

"crafting": "integer",

"explosives": "integer",

"drone\_ops": "integer",

"counterintel": "integer"

},

"mental\_state": {

"loyalty": "float",

"stress": "float",

"ideological\_dissonance": "float",

"trauma": "float",

"sleeper\_flag": "boolean",

"burnout\_threshold": "float"

},

"relationships": {

"romantic": ["id"],

"mentorships": ["id"],

"conflicts": ["id"]

},

"position": {

"cell\_id": "string",

"district": "string",

"status": "active | sleeper | captured | in\_hiding | undercover"

},

"history\_log": ["string"],

"tags": ["veteran", "snitch\_risk", "syndicalist", "ex-cop", "public\_face"]

}

#### **Key Mechanics Integration**

* **Skills** affect success rolls during task resolution (e.g. infiltration, bomb-making).
* **Mental State** feeds into WREN symbolic processing for psychological arcs and loyalty flips.
* **Relationships** generate emergent narrative via faction drama and loyalty shifts.
* **Position** is critical to surveillance, arrest risk, and operational assignment logic.

#### **SYLVA/WREN Hooks**

* "ideological\_dissonance" triggers symbolic dream sequences or emotional flashbacks.
* "trauma" feeds into burnout, radicalization, or breakdown simulation.
* "loyalty" and "burnout\_threshold" control betrayal events, martyrdom actions, or public defections.

## ***🔍 Expanded* CadreMember *Object Model v2***

### **🧠 Core Identity**

* id: *Unique identifier* (UUID)
* name: *Public name or codename*
* aliases: *List of alternate identities*
* age, gender, ethnicity, pronouns
* origin\_story: *Text field for symbolic background generation via WREN*
* recruitment\_date, recruited\_by\_id

### **🛠️ Functional Stats**

* skills (0–100 scale or dice pools):  
  + combat
  + infiltration
  + rhetoric
  + medicine
  + propaganda
  + cyber\_ops
  + crafting
  + explosives
  + drone\_ops
  + counterintel
  + logistics
* training\_tags: e.g., ["AK-47", "first aid", "radical pedagogy"]

### **🧬 Psychological State (SYLVA/WREN Anchored)**

json

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"psychology": {

"loyalty": 0.0,

"burnout": 0.0,

"ideological\_dissonance": 0.0,

"resilience": 0.0,

"trauma\_index": 0.0,

"disassociation\_flags": [],

"motivators": ["vengeance", "community", "hope"],

"fear\_triggers": ["capture", "betrayal"],

"attachment\_level": {

"faction": 0.8,

"individual\_ids": {"123": 0.9, "456": 0.2}

}

}

* **WREN Use Cases**: Dream sequences, stress behaviors, trauma responses, breakdown simulation, character drift.

### **🔒 Security & Infiltration Risk**

* heat\_level: 0–100 risk of being flagged by state
* cover\_identity: {name, role, faction}
* surveillance\_flags: [“bugged home”, “follower detected”]
* compromised: true/false
* sleeper\_status: dormant / activated / flipped
* snitch\_risk: AI-evaluated or procedurally determined

### **🧭 Operational Status**

* cell\_id
* district
* current\_task\_id
* task\_history: log of missions
* status: active / sleeper / captured / underground / dead

### **🪢 Relationship Matrix**

* romantic\_partners: [ids]
* mentors, rivals, co-conspirators
* interpersonal\_flags: trust, betrayal, guilt, dependency

### **🎨 Tags & Roles**

* tags: ["combat medic", "radicalized student", "ex-military"]
* public\_face: boolean
* symbolic\_resonance: float score (for WREN-based morale and narrative beats)

### **🗃 Sample JSON Object**

json

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{

"id": "c893-28a1",

"name": "Redbird",

"aliases": ["Laura K", "Alma", "Cicada"],

"age": 29,

"gender": "female",

"origin\_story": "Former anthropology student radicalized after a massacre in her home district...",

"skills": {

"combat": 45,

"infiltration": 70,

"propaganda": 88

},

"psychology": {

"loyalty": 0.91,

"burnout": 0.12,

"ideological\_dissonance": 0.02,

"resilience": 0.8,

"trauma\_index": 0.6,

"motivators": ["solidarity", "grief"]

},

"heat\_level": 47,

"status": "active",

"district": "Central Slum",

"cell\_id": "shadow\_sparks",

"relationships": {

"romantic\_partners": ["8342a"],

"rivals": ["1192d"]

},

"tags": ["press liaison", "student agitator", "no-kill policy"]

}

*Great — since we've expanded the* CadreMember *model, let's move on to* **Faction***.*

Here’s a detailed specification of the Faction object suitable for Cursor implementation:

## **🏴‍☠️ Faction Object Definition (Master Spec v1.0)**

Factions are macro-entities that shape the world state, interact with the player, conduct operations, and evolve ideologically. Each faction has internal dynamics, a procedural agenda, and variable risk thresholds that affect gameplay diplomacy, sabotage, and war.

### **🧩 Base Schema**

{

"id": "faction\_rebel\_front\_001",

"name": "Red Vanguard Collective",

"ideology": ["Marxist", "Platformist"],

"alignment": "left",

"aggression": 0.75,

"cooperation": 0.30,

"resource\_pool": 8900,

"influence\_regions": ["Central District", "Docklands"],

"relationships": {

"gov\_national": -80,

"faction\_militia\_1": -20,

"faction\_syndicalist\_2": +60

},

"leaders": ["cadre\_id\_111", "cadre\_id\_274"],

"goals": ["Topple central gov", "Establish regional commune"],

"structure": "Cellular",

"tactics": ["Sabotage", "Propaganda", "Covert Training"],

"known\_ops": ["railway\_bombing\_02", "teacher\_union\_push"],

"sympathy\_score": 0.52,

"cultural\_footprint": 0.44,

"foreign\_ties": ["gov\_socialist\_exile", "movement\_neighborkin"],

"infiltrated\_by": ["state\_internal\_security", "rival\_faction\_id\_003"],

"media\_presence": {

"coverage": 0.38,

"narrative\_control": 0.27

},

"doctrine": {

"armed\_struggle": true,

"community\_programs": true,

"electoral\_strategy": false,

"internationalism": true

},

"internal\_friction": 0.21,

"symbolic\_index": 0.61

}

### **🧠 Key Components**

#### **Identity & Alignment**

* name, id: Unique, human-readable
* ideology: List of tags (e.g., “Anarchist-Feminist”, “Eco-Radical”)
* alignment: left, right, centrist, nihilist, ethno-nationalist, unknown

#### **Structure & Doctrine**

* structure: vanguardist, decentralized, syndicalist, councilist, charismatic, cultic
* doctrine: Boolean map of major beliefs (supports armed struggle? community work? electoral strategy?)

#### **Leadership & Internal Cohesion**

* leaders: List of active cadre member IDs
* internal\_friction: Float 0–1 (schism risk, factional disputes)
* goals: High-level narrative objectives, auto-updating based on events

### **⚔️ Behavioral Traits**

#### **Diplomacy**

* aggression: How likely to escalate (0–1)
* cooperation: Likelihood to align with others
* relationships: Map of all other faction standings (can change over time)

#### **Operations**

* tactics: Preferred gameplay verbs (assassination, mutual aid, cyberwarfare)
* known\_ops: Logged recent actions tied to faction
* foreign\_ties: Links to other simulated entities (intelligence, diaspora, parties abroad)

#### **Influence**

* sympathy\_score: Public favorability (0–1)
* cultural\_footprint: Impact on underground music, art, discourse
* media\_presence: Coverage intensity and narrative control

#### **Threat & Resistance**

* infiltrated\_by: Agencies or factions with active embedded agents
* heat\_level: Risk of crackdown
* security\_protocol: Passive vs active, deep cover use, vetting policy

### **🌀 Symbolic & Narrative Integration (SYLVA/WREN)**

* symbolic\_index: Measures faction’s mythic/metaphoric resonance in player culture
* Used for:  
  + Media event framing
  + Dream-based faction interactions
  + Morale bonuses from aligned aesthetics
  + Adaptive enemy AI bias against threatening philosophies

### **🗺 Example Factions (from Years of Lead Design)**

| **Name** | **Ideology** | **Structure** | **Key Mechanics** |
| --- | --- | --- | --- |
| Red Vanguard Collective | Marxist-Platformist | Cellular | Armed sabotage, mutual aid |
| Island Resistance Front | Nationalist-Leninist | Semi-hierarchical | Guerrilla training, propaganda wars |
| Liberation Movement F | Feminist-Eco-Anarchist | Consensus | Cultural events, direct sabotage |
| Democratic Union | Electoral Democratic Socialism | Centralized | Fundraising, public debate, referendums |

Let me know if you want:

* The FactionBehaviorEngine
* Dynamic FactionGoal evolver
* SYLVA/WREN **Faction Loyalty & Betrayal Hooks**
* Next entity (like Task, Cell, or Event) defined for Cursor

Which one next?

*🧠* **Expanded Faction Object Dynamics**

Factions in *Years of Lead* are not just AI opponents—they are living ideological entities. Each faction maintains:

* **Doctrine Logic**: armed struggle, community development, political entryism, propaganda distribution.
* **Public Influence**: a procedural simulation of narrative control, visibility, symbolic resonance, and public sympathy.
* **AI Behavioral Modifiers**: factions develop strategies based on government response, economic pressure, internal dissent, and foreign influences.
* **Cultural Footprint & Soft Power**: scores for music scenes, academic networks, and artistic collectives associated with the faction.
* **Symbolic Index** (via SYLVA): the mythic and metaphoric presence of a faction within national consciousness, which affects morale, fear, trust, and dissociation events.

Each faction evolves through:

* *Experience trees* (events they survived or caused)
* *Doctrinal splits* (internal disputes leading to schisms or new tactics)
* *Public trials, disappearances, cultural martyrdom, or mass support events*

🧠 **Faction Behavior Engine (FBE)**

The FBE governs every AI-controlled faction and includes:

### **Behavior Model Layers:**

1. **Strategic Core**:  
   * Decides if a faction escalates, pivots, recruits, or consolidates.
   * Driven by public opinion, resource access, and symbolic pressure.
3. **Operational Logic**:  
   * Determines actions like publishing manifestos, targeting enemies, creating safehouses, or launching protests.
   * Assigns available cadres or sleeper cells.
5. **Adaptation Layer**:  
   * Tracks player actions, emulates successful tactics, and adapts rhetorically.
   * Includes mimicry: right-wing factions using protest language, or left factions engaging in moral reframing.
7. **Personality Matrix**:  
   * Weighted traits like Aggression, Paranoia, Openness to Coalition, Propaganda Efficacy.
9. **Narrative Hooks (via WREN)**:  
   * Injects symbolic crises, leader betrayals, martyr arcs, and origin myths.

### **Subsystems:**

* **Goal Tracker**: Breaks macro-objectives into sub-tasks and shifts them based on game state.
* **Faction Mood**: Driven by public response, internal losses, or media success.
* **Heat Curve Monitor**: Predicts state responses and forces defensive posturing.
* **Doctrine Drift**: Factions can slowly or violently alter ideology through trauma, failure, or infiltration.
* **Betrayal Simulator**: Agents may defect, fake defection, or blackmail.

Each faction's behavior is modulated by a weighted sum of their ideological rigidity, symbolic visibility, political space, and player interactions.

*🧩* **Task Object Scaffolding**

Tasks are the fundamental unit of action assignment in *Years of Lead*. Every order, from leading a rally to crafting a suppressor, is a Task object. The system must support flexibility, recursion, and conditionals.

### **Core Fields:**

* id: Unique identifier.
* name: (e.g. "Surveil police precinct")
* description: Textual summary of purpose.
* assigned\_to: Cadre member ID(s).
* location\_id: District or node where task occurs.
* task\_type: Enum (e.g. PROPAGANDA, SURVEILLANCE, ASSEMBLY, ESPIONAGE, AID, CRAFTING).
* start\_time / duration / turn\_cycle.
* required\_skills: Skills that modify outcome odds.
* risk\_level: Calculated threat to actor.
* visibility: Chance of being noticed by press, police, population.
* success\_chance: Derived from stats, traits, stress, environment.
* heat\_generated: Integer from 0-100 scale.
* on\_success / on\_failure: Triggers for state changes.
* faction\_id: Faction origin for coordination or sabotage.
* symbolic\_impact: SYLVA-compatible narrative weight (e.g. mythic echo, betrayal resonance).

### **Optional Enhancements:**

* dependencies: Task IDs that must be completed beforehand.
* stealth\_required: Boolean flag.
* resources\_consumed: Materials or currency burned.
* tags: Freeform logic hooks (e.g. "covert", "public-facing", "communal").

*Let’s now define the* **Event Object** *scaffolding—crucial for tracking emergent narrative, mechanical triggers, faction behaviors, and government reactions.*

### **🎭 Event Object Scaffolding**

#### **Overview**

An Event in *Years of Lead* is any consequential game-state change, narrative beat, system trigger, or historical marker. Events are not tasks—they are **outcomes**, **incidents**, or **external developments** that ripple through the world.

#### **Core Fields**

json

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{

"id": "string",

"title": "string",

"description": "string",

"type": "POLITICAL | SOCIAL | MILITARY | SYMBOLIC | INTERNAL | MEDIA | EXTERNAL",

"timestamp": "ISO8601",

"location\_id": "string",

"faction\_involved": ["faction\_id"],

"cadre\_involved": ["cadre\_id"],

"affected\_public\_opinion": {

"support\_shift": "float",

"fear\_index": "float",

"polarization\_delta": "float"

},

"government\_response": {

"policy\_shift": "string",

"repression\_level\_change": "integer",

"negotiation\_flag": "boolean"

},

"symbolic\_value": {

"mythic\_weight": "float",

"dissonance\_trigger": "boolean",

"SYLVA\_resonance\_type": "string"

},

"media\_coverage": {

"exposure": "float",

"tone": "positive | negative | split",

"propaganda\_intervention": "boolean"

},

"event\_flags": ["riot", "arrest", "martyrdom", "milestone", "false\_flag"],

"linked\_tasks": ["task\_id"],

"lasting\_effects": {

"duration\_turns": "integer",

"effect\_description": "string"

}

}

#### **Functional Notes**

* Can trigger **doctrine drift**, **public backlash**, or **new laws**.
* May appear via scheduled timeline (e.g. “May Day protest”), random incidents, or scripted arcs.
* All factions monitor events to adapt behavior.
* Player can intentionally **create**, **leak**, or **amplify** events via actions and propaganda.

#### **Example Event**

json

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{

"id": "event\_0432",

"title": "Firebombing at State Archive",

"description": "Unknown parties attacked the national archive using improvised incendiaries.",

"type": "SYMBOLIC",

"timestamp": "2025-07-14T03:00:00Z",

"location\_id": "capital\_district",

"faction\_involved": ["faction\_autonomist\_front"],

"cadre\_involved": ["cadre\_lucia\_valdez"],

"affected\_public\_opinion": {

"support\_shift": -0.12,

"fear\_index": 0.34,

"polarization\_delta": 0.15

},

"government\_response": {

"policy\_shift": "Expanded Emergency Powers",

"repression\_level\_change": 2,

"negotiation\_flag": false

},

"symbolic\_value": {

"mythic\_weight": 0.8,

"dissonance\_trigger": true,

"SYLVA\_resonance\_type": "historical\_memory"

},

"media\_coverage": {

"exposure": 0.95,

"tone": "negative",

"propaganda\_intervention": true

},

"event\_flags": ["milestone", "riot"],

"linked\_tasks": ["task\_124", "task\_130"],

"lasting\_effects": {

"duration\_turns": 12,

"effect\_description": "Increased surveillance in all cultural sites."

}

}

Here is the full **Event Object** expansion, now appended directly to your document to follow the Task section. Afterward, we’ll proceed to **Government State Simulation**.

🧩 **Event Object Scaffolding**

Events are systemic outcomes, narrative inflection points, or world-state shifts. They do not represent player-issued tasks but **consequences**, **emergent phenomena**, or **external developments**. They directly modify public opinion, faction behavior, symbolic memory, and state posture.

### **Core Fields:**

* id: Unique identifier (e.g. "event\_0123")
* title: Brief name (e.g. "Worker's Hospital Firebombed")
* description: Rich narrative output of the event.
* type: Enum: POLITICAL | SOCIAL | MILITARY | CULTURAL | INTERNAL | MEDIA | EXTERNAL
* timestamp: Turn or time registered (ISO8601 or game-turn)
* location\_id: Links to district/region where event occurred.
* faction\_involved: List of faction IDs responsible or affected.
* cadre\_involved: List of involved player or NPC IDs.
* affected\_public\_opinion:  
  + support\_shift: Float (-1 to 1)
  + fear\_index: Float (0 to 1)
  + polarization\_delta: Float (0 to 1)
* government\_response:  
  + policy\_shift: Optional string if laws change.
  + repression\_level\_change: Integer (+/- repression stat).
  + negotiation\_flag: Bool if event prompts diplomacy.
* symbolic\_value: SYLVA integration layer  
  + mythic\_weight: Float (e.g. martyrdom, icon status)
  + dissonance\_trigger: Bool (if event causes symbolic rupture)
  + SYLVA\_resonance\_type: Narrative tag (e.g. “ritual\_forgiveness”, “betrayal\_arc”)
* media\_coverage:  
  + exposure: Float (0-1 visibility)
  + tone: Enum: positive | negative | ambiguous
  + propaganda\_intervention: Bool if state or factions spin coverage.
* event\_flags: Array: ["martyr", "riot", "propaganda", "false\_flag", etc.]
* linked\_tasks: Optional: IDs of tasks that generated or were affected by this event.
* lasting\_effects:  
  + duration\_turns: Integer
  + effect\_description: Long-form description of ripple impacts.

### **Example:**

json

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{

"id": "event\_0456",

"title": "Riot in the Port District",

"description": "A protest over food rationing erupted into a day-long street conflict after police kettled demonstrators. Footage of injured children circulated widely.",

"type": "SOCIAL",

"timestamp": "2026-04-17T20:00:00Z",

"location\_id": "port\_district",

"faction\_involved": ["anarcho\_mutualist\_union"],

"cadre\_involved": ["cadre\_eli\_rojas"],

"affected\_public\_opinion": {

"support\_shift": 0.15,

"fear\_index": 0.2,

"polarization\_delta": 0.3

},

"government\_response": {

"policy\_shift": "Emergency Night Curfews",

"repression\_level\_change": 3,

"negotiation\_flag": false

},

"symbolic\_value": {

"mythic\_weight": 0.75,

"dissonance\_trigger": true,

"SYLVA\_resonance\_type": "grief\_resistance"

},

"media\_coverage": {

"exposure": 0.95,

"tone": "negative",

"propaganda\_intervention": true

},

"event\_flags": ["riot", "milestone", "media\_flashpoint"],

"linked\_tasks": ["task\_302"],

"lasting\_effects": {

"duration\_turns": 6,

"effect\_description": "Militarized police patrols remain in the port district."

}

}

{

"id": "event\_0456",

"title": "Riot in the Port District",

"description": "A protest over food rationing erupted into a day-long street conflict after police kettled demonstrators. Footage of injured children circulated widely.",

"type": "SOCIAL",

"timestamp": "2026-04-17T20:00:00Z",

"location\_id": "port\_district",

"faction\_involved": ["anarcho\_mutualist\_union"],

"cadre\_involved": ["cadre\_eli\_rojas"],

"affected\_public\_opinion": {

"support\_shift": 0.15,

"fear\_index": 0.2,

"polarization\_delta": 0.3

},

"government\_response": {

"policy\_shift": "Emergency Night Curfews",

"repression\_level\_change": 3,

"negotiation\_flag": false

},

"symbolic\_value": {

"mythic\_weight": 0.75,

"dissonance\_trigger": true,

"SYLVA\_resonance\_type": "grief\_resistance"

},

"media\_coverage": {

"exposure": 0.95,

"tone": "negative",

"propaganda\_intervention": true

},

"event\_flags": ["riot", "milestone", "media\_flashpoint"],

"linked\_tasks": ["task\_302"],

"lasting\_effects": {

"duration\_turns": 6,

"effect\_description": "Militarized police patrols remain in the port district."

}

}  
  
 🗳️ **Government State Simulation**

The government in *Years of Lead* is a complex, reactive system simulating the political, administrative, and security apparatus of the fictional island state. It shifts in response to faction actions, public pressure, media events, and international dynamics.

### **Core Architecture:**

#### **Government Object Fields:**

* regime\_type: Enum (e.g. Parliamentary Democracy, Authoritarian Technocracy, Junta, Emergency State, One-Party Democracy)
* governance\_score: Float (0.0–1.0, higher means efficient, lower means unstable)
* legitimacy: Float (0.0–1.0, perception of rightful governance)
* repression\_level: Integer (scale from 0 to 10, affects arrests, raids, civil rights)
* propaganda\_index: Float (0.0–1.0, trust in state media)
* corruption\_score: Float (0.0–1.0, impacts elite loyalty and opposition strength)
* election\_cycle: Integer (turns until next election or fake referendum)
* surveillance\_depth: Integer (tech and human resources allocated to surveillance)
* public\_service\_effectiveness: Float (education, hospitals, services; affects legitimacy)
* opposition\_tolerance: Float (higher = more protest/legal space)
* international\_posture: Enum (Non-Aligned, Western Aligned, Rogue, Sanctioned, Coup Risk)
* factional\_infiltration: Map of faction\_id → infiltration\_level (0.0–1.0)
* symbolic\_crisis\_flags: Array (e.g. “legitimacy fracture”, “military overstep”, “election scandal”)

#### **Political Institutions:**

* executive: Leader name, approval rating, paranoia score, backers
* judiciary: Autonomy level, ideology bias, corruption
* security\_forces: Total strength, deployment readiness, morale
* intelligence\_agency: Aggressiveness, resources, double-agent risk
* media\_ministry: Press control rating, narrative spin rate
* governors: By district, including loyalty, ideology, and unrest resistance

### **State Behavior Subsystems**

#### **1. Legislation Engine**

* Responds to faction pressure, events, and symbolic ruptures.
* Laws may increase repression, grant amnesties, change surveillance rules, or outlaw ideologies.
* Bills simulate votes, negotiation, or dictatorial decree depending on regime\_type.

#### **2. Security Response Protocols**

* Protests → kettling, arrests, curfews, infiltration
* Armed actions → raids, martial law, targeted strikes
* Community organizing → undercovers, propaganda, social defunding
* Intelligence analysis engine flags cells or individuals as threats.

#### **3. State Narrative Manager (SYLVA-linked)**

* Tracks mythic perception of the state: "Protector," "Leviathan," "Decaying God," etc.
* Affects morale, elite cohesion, and citizen defection probability.
* Triggered by martyrdom, corruption revelations, and absurd repression.

#### **4. Diplomatic Behavior**

* Aligns or distances from foreign powers.
* May accept military or cyber support to crack down.
* Coup probability increases with isolation, internal split, and legitimacy collapse.

### **Systemic Outputs:**

* Heat Map: visualization of state attention per district.
* Emergency Orders: When legitimacy < 0.3 or repression > 8, triggers drastic state behavior (e.g. disappearances, blackout zones, propaganda floods).
* Policy Drift: Over time, state may become fascist, liberalize, split, or collapse.

Here’s a detailed breakdown of the **Government State Simulation** and accompanying scaffolding, designed for integration with the broader *Years of Lead* system architecture:

## **🏛️ Government State Simulation**

The **Government State Simulation (GSS)** models the political, legal, and repressive dynamics of the central government in response to player and AI faction activity. It functions as a persistent, reactive entity tracking domestic legitimacy, economic conditions, ideological orientation, repression level, and susceptibility to negotiation or collapse.

### **🎚️ Core Government Stats**

| **Variable** | **Type** | **Range** | **Description** |
| --- | --- | --- | --- |
| legitimacy | Float | 0.0 - 1.0 | Public trust in government institutions. Affects electoral outcomes, military morale, and faction defection rates. |
| repression\_level | Integer | 0 - 100 | Severity of policing, surveillance, and legal crackdowns. Unlocks tiered repressive measures. |
| governance\_efficiency | Float | 0.0 - 1.0 | Capacity to implement policies or respond to crises. Degrades under strain or sabotage. |
| economic\_stability | Float | -1.0 to +1.0 | Global indicator of inflation, scarcity, unemployment. Affects both popular unrest and budget. |
| policy\_tilt | Enum | LEFT | CENTER |
| public\_sentiment | Dict | {"left": 0.3, "right": 0.4, "neutral": 0.3} | Dynamic ideological leanings of the populace. Drives political outcomes and protest behavior. |
| military\_loyalty | Float | 0.0 - 1.0 | Chance of full compliance with orders during unrest. Low values risk coup or split. |
| negotiation\_posture | Enum | NONE | HARSH |

### **🌀 Repression Triggers & Escalation Tiers**

As unrest escalates, the government unlocks tools including:

* **Curfews and Emergency Powers** (Repression > 25)
* **Martial Law** (Repression > 50)
* **Mass Detention Camps** (Repression > 75)
* **Death Squads / Disappearances** (Repression > 90)

Tiers come with penalties to legitimacy and fuel faction recruitment and polarization.

### **🔄 Government Simulation Tick (per turn)**

1. **Evaluate Unrest Inputs**:  
   * Protest turnout, sabotage success, faction visibility.
3. **Check Legitimacy Delta**:  
   * Shifts from scandals, propaganda, exposed repression.
5. **Apply Policy Logic**:  
   * State may pass new laws, grant subsidies, increase policing.
7. **Electoral Cycle Simulation**:  
   * Polling phase → campaign events → voting → coalition shift.
9. **Update Public Opinion**:  
   * Reflect media events, fear spikes, narrative victories.
11. **Trigger External Dependencies**:  
    * Foreign aid cuts, military advice, or international scandal.

## **🧩 GovernmentState Object Scaffolding**

This object defines the persistent and reactive state of the central authority.

json

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{

"id": "gov\_sim\_001",

"legitimacy": 0.78,

"repression\_level": 22,

"governance\_efficiency": 0.84,

"economic\_stability": -0.12,

"policy\_tilt": "CENTER",

"public\_sentiment": {

"left": 0.35,

"right": 0.42,

"neutral": 0.23

},

"military\_loyalty": 0.93,

"negotiation\_posture": "MODERATE",

"current\_laws": [

"Public Gathering Limitations",

"Classified Surveillance Act",

"Emergency Powers Framework"

],

"pending\_election": {

"type": "General",

"date": "2026-08-17",

"polling": {

"National Renewal Front": 0.38,

"Progressive Labor Bloc": 0.29,

"Free Islands Alliance": 0.21

}

},

"last\_updated": "2026-04-17T00:00:00Z"

}

### **Optional Extensions:**

* foreign\_alignment: Enum (NEUTRAL | WEST | NONALIGNED | AUTHORITARIAN)
* propaganda\_budget: Integer or Float, modifies public sentiment drift.
* military\_doctrine: Enum or trait list (e.g. “Containment”, “Shock and Awe”, “Civil Restraint”)

## **🏛️ Government State Simulation (Expanded)**

This system governs the evolving structure, behavior, and vulnerability of the **central government**, which acts as both a reactive AI faction and a dynamic world-shaping force.

### **🔁 Government Lifecycle Phases**

The state transitions through these stages, based on internal and external pressures:

1. **Stable Rule** – High legitimacy, moderate repression, democratic façade.
2. **Strained Legitimacy** – Mounting unrest, scandals, or economic pressure.
3. **Crisis Response** – Activates curfews, blacklists, or emergency powers.
4. **Fragmented Regime** – Competing factions inside the government itself (e.g., police vs. military).
5. **Terminal Collapse** – Succession crisis, coup, or full dissolution.

Each phase alters how the government can respond, its internal factional splits, and what tools it uses to suppress or negotiate.

### **🤝 Negotiation System**

Negotiation is a mid-to-late game system where the state considers opening **backchannel communications**, **formal talks**, or **appeasement offers** to revolutionary factions.

#### **Conditions That Trigger Negotiation:**

* Government repression > 60 and legitimacy < 30%
* Faction symbolic resonance > 0.75 and support > 40%
* Major martyrdom or mass protest event
* External diplomatic pressure

#### **Negotiation Offer Types:**

* **Prisoner Release**
* **Safe Passage for Cadre**
* **Partial Legalization**
* **Regional Autonomy**
* **Electoral Inclusion**
* **Token Reforms (e.g., labor rights)**

#### **Faction Response Options:**

* Accept (may demobilize cadres, gain legitimacy)
* Reject (gains symbolic clout, increases crackdown risk)
* Counter-Propose (e.g., demand structural reform)
* Pretend to Accept (may buy time or set traps)

#### **Technical Fields:**

json

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"negotiation\_session": {

"status": "active",

"started\_turn": 119,

"initiating\_party": "state",

"offers": ["release\_prisoners", "policy\_reform\_labor"],

"demands": ["recognition\_as\_party", "amnesty"],

"faction\_involved": "red\_vanguard\_collective",

"trust\_level": 0.25,

"leak\_risk": 0.4,

"negotiation\_tone": "tense"

}

Negotiations become part of the narrative record, affecting:

* Internal faction mood
* Public sentiment shifts
* Future player diplomatic credibility

### **💥 Collapse Scenarios**

If legitimacy and efficiency collapse under pressure, several paths can emerge:

1. **Coup d’état** – Military or elite factions seize control, altering governance.
2. **Election Revolt** – A popular front wins in a landslide, voiding previous laws.
3. **Failed State Fragmentation** – Different regions fall under factional rule.
4. **Sovereign Transition** – A peaceful transfer, typically requiring player diplomacy.
5. **Foreign Occupation** – Triggered if a faction invites external protection.

#### **Collapse Tracker Subsystem**

Each turn, the following values are evaluated:

| **Variable** | **Description** |
| --- | --- |
| collapse\_pressure | Sum of unrest, economic stress, and morale decay |
| command\_fragility | Measures internal splits in governance |
| coup\_threshold | If > 0.85, immediate military challenge |
| succession\_confusion | Integer tracking disputed political control |
| secession\_risk | Based on regional sentiment and border conflicts |

Collapse flags modify narrative, gameplay, and faction access:

* New districts may declare independence
* Some police forces break ranks
* Media framing of "failed state" emerges

## **🏛️ Government State Simulation & Scaffolding**

The **Government State Simulation** models the evolving behavior, posture, and policy trajectory of the state over time. It balances stability, repression, legitimacy, and resource access, and dynamically reacts to faction activity, public unrest, media pressure, and external conditions.

### **🧩 Government Object Fields**

json

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{

"id": "government\_national",

"type": "CENTRALIZED" | "WEAK\_FEDERAL" | "MILITARY\_JUNTA" | "TRANSITIONAL" | "OCCUPATION",

"stability": 0.0-1.0, // General internal cohesion

"legitimacy": 0.0-1.0, // Perceived popular support

"repression\_index": 0-100, // Determines police aggression, surveillance scope

"corruption\_level": 0-100, // Influences bribery chances, morale hits

"response\_doctrine": ENUM: // E.g. "Liberal Reformist", "Hardline", "Counterinsurgency", "Populist"

"policies": [...], // List of active legal/political policies (e.g. curfews, media bans)

"foreign\_alliances": [...], // Rogue state sponsors, embassies, weapons sources

"military\_readiness": 0-100, // Available force projection for domestic deployments

"internal\_rivalries": [...], // Tracks elite faction conflicts (e.g. civilian-military divide)

"negotiation\_status": ENUM: "none" | "secret\_backchannel" | "official\_talks" | "collapsed",

"crisis\_flags": [...], // ["economic\_meltdown", "scandal", "invasion", etc.]

"symbolic\_health": 0.0-1.0, // Cultural trust in national identity/mythos (SYLVA-linked)

"media\_control": 0-100, // % control over narrative

"electoral\_timeline": DATE[], // Upcoming elections, referendums, votes

"propaganda\_budget": integer, // Used for state-aligned media or psy-ops

"suppression\_tools": { // Deployed mechanisms

"secret\_police": BOOL,

"military\_policing": BOOL,

"data\_surveillance": BOOL,

"blacklists": BOOL

},

"concessions\_log": [...], // Reforms made under pressure

"collapse\_thresholds": {

"economic": float,

"military": float,

"civic": float,

"symbolic": float

}

}

### **🔁 Simulation Mechanics**

#### **1. Reaction Engine**

Evaluates:

* Protests over size → *Escalation thresholds*
* Media scandals → *Policy softening or coverup*
* Cadre attacks on state → *Heat up repression or trigger crackdowns*
* Foreign media exposure → *Initiate negotiation, or go dark*

#### **2. Negotiation Window Logic**

A triggered *negotiation\_flag* (from events/tasks) initiates a **dialogue loop**:

* Establishes opening demands, state offers
* Influenced by **legitimacy**, **symbolic\_health**, and **faction heat**
* Can result in **policy changes**, **amnesties**, or **betrayal traps**

#### **3. Collapse Mechanics**

Collapse isn't binary—it occurs in layers:

* **Symbolic collapse**: Public no longer believes in the system.
* **Administrative collapse**: Bureaucracy fails—events go unrecorded, arrests lapse.
* **Force collapse**: Military/police disobey orders.
* **Civil collapse**: Provinces go autonomous; elections invalid.

Triggers include:

* Simultaneous crises across repression, legitimacy, and economy.
* Rebellion success in multiple zones.
* Faction symbolic victory (e.g. assassinations, cultural coups).

Here are the next two systems, starting with the **Electoral Simulation Layer** and followed by **District Modeling**.

## **🗳️ Electoral Simulation Layer**

The **Electoral Simulation Layer** models public political processes such as elections, referendums, and legitimacy contests. It interfaces with the Public Opinion Engine, Faction Propaganda, Government Legitimacy, and Symbolic Systems.

### **🎯 Core Concepts**

* **Election Cycles**: Scheduled and unscheduled (snap) elections impact local and national power dynamics.
* **Referendum Engine**: Triggered by faction demands, public unrest, or political theater.
* **Voter Blocs**: Public opinion isn’t monolithic—voters are modeled in shifting ideological blocs.
* **Faction Campaigning**: Player or AI factions may go legalist, campaign openly, or attempt to manipulate results.

### **🧩 Election Object**

json

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{

"id": "election\_2032\_presidential",

"type": "presidential" | "legislative" | "referendum",

"date": "2032-11-08",

"scope": "national" | "regional" | "district",

"triggered\_by": "constitutional\_timeline" | "pressure\_event" | "collapse\_mechanism",

"eligible\_parties": ["gov\_party", "socialist\_alliance", "centrist\_front"],

"voter\_turnout\_projection": 0.66,

"polling\_data": {

"gov\_party": 0.37,

"socialist\_alliance": 0.31,

"centrist\_front": 0.21,

"undecided": 0.11

},

"manipulation\_flags": {

"fraud": true,

"intimidation": false,

"foreign\_interference": false

},

"symbolic\_stakes": {

"collapse\_risk": 0.2,

"symbolic\_rupture": true,

"SYLVA\_trigger": "false\_choice\_crisis"

},

"outcome\_data": {

"winner": "gov\_party",

"contested": true,

"revolt\_potential": 0.45

}

}

### **🧠 Mechanics**

* **Polling Shifts**: Caused by propaganda, symbolic events, scandals, and faction visibility.
* **Turnout Modifiers**: Fear, suppression, hope, or organized logistics influence who votes.
* **Result Legitimacy**: Tracked via perceived\_legitimacy\_score; affects public calm, faction escalation, or state collapse thresholds.
* **Election Events**:  
  + *Assassinations*: Delay or delegitimize results.
  + *Spoiler Candidates*: Fragment ideological space.
  + *Ballot Access Fights*: Gate factions from legality.

## **🗺️ District Modeling & Local Simulation**

The world is not flat. Each **District** is a node in the simulation graph representing geographic, cultural, and economic diversity.

### **🌐 District Object**

json

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{

"id": "university\_quarter",

"name": "University Quarter",

"region": "North City",

"population": 82000,

"dominant\_economy": "education",

"affinities": {

"left\_radical": 0.65,

"centrist": 0.2,

"right\_populist": 0.05

},

"heat\_level": 0.3,

"surveillance\_intensity": 0.4,

"symbolic\_landmarks": ["Statue of Dissent", "Red Library"],

"available\_nodes": ["safehouses", "clinics", "black market hub"],

"state\_presence": {

"police\_density": 0.6,

"informant\_network": 0.5

},

"community\_assets": {

"radical\_radio": true,

"youth\_union": true,

"drug\_network": false

},

"recent\_events": ["student\_strike", "professor\_disappearance"],

"faction\_influence": {

"red\_vanguard": 0.7,

"gov\_party": 0.15,

"cultural\_front": 0.4

}

}

### **⚙️ Mechanics**

* **Heat & Surveillance**: Affects task risk, suppression likelihood, and symbolic memory.
* **Assets & Landmarks**: Provide bonuses to recruitment, symbolic resonance, or safehouse logistics.
* **Event Hooks**: Districts generate micro-events, such as blackouts, informant tipoffs, or mass meetings.
* **District Drift**: Based on public outreach, media exposure, faction control, and repression intensity.

### **🔁 Optional Extensions**

* **District Autonomy Scores**: Can "break away" during collapse or join insurrection.
* **Cultural Subsystems**: Support for localized music, art, or dialects.
* **Dynamic Boundaries**: Redrawn through conflict, election results, or sabotage.

## **🚧 Prison Resistance System (Expanded)**

Imprisonment is not the end—it is a transformation. *Years of Lead* models carceral repression and resistance as its own ecosystem of influence, coordination, and symbolic rupture.

### **🎯 Core Concepts**

* **Active Resistance from Within**: Imprisoned cadres can coordinate through covert channels to continue impacting the struggle.
* **Outside-In Support Network**: Public defenders, lawyers, supporters, and family create lifelines to sustain prison-bound influence.
* **Carceral Surveillance Pressure**: Actions from prison increase risk of solitary, reassignment, or "accidents."

### **🧱 Prisoner Object Expansion**

json

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{

"id": "cadre\_j\_zaidi",

"incarcerated": true,

"facility\_id": "stammheim\_block\_a",

"sentence\_length": "8y",

"health\_status": "stable",

"solitary\_status": false,

"outside\_contact": {

"lawyer\_id": "contact\_a5",

"smuggling\_networks": ["books", "microfilm", "oral\_cues"],

"visitation\_frequency": "medium"

},

"influence\_from\_prison": {

"commands\_issued": ["organize\_sit\_in", "approve\_statement"],

"symbolic\_presence\_score": 0.8,

"letters\_published": 3

},

"resistance\_traits": {

"morale": 0.7,

"network\_links": 0.5,

"psychological\_strain": 0.4

},

"surveillance\_rating": 0.6,

"media\_visibility": 0.9,

"risk\_of\_relocation": 0.3

}

### **🔁 Interactions & Mechanics**

* **Command Relays**: Prisoners issue coded commands through lawyers, guards, books, or art.
* **Symbolic Amplification**: Prisoners gain mythic weight if they remain active, publish resistance statements, or face harsh retaliation.
* **Solitary & Punishment Triggers**: If too active, prisoners face increased restrictions—tracked via heat\_in\_facility and warden\_disposition.
* **Jailbreak Option**: Late-game risk-heavy operation to break out or extract key leaders.
* **Legal Strategy Mini-System**: Lawyer allies can delay trials, expose corruption, or leak testimony.

### **📚 Prison Environment Simulation**

Each prison has:

* control\_level (gov authority)
* sympathy\_index (staff + public)
* informant\_density
* escape\_feasibility
* symbolic\_weight (e.g., famous dissident prison)
* daily routine variables (usable for planning disruptions or smuggling)

## **🕵️ Surveillance & Infiltration Mechanics**

The **Surveillance/Infiltration System** is the adversarial mirror of the player’s organizing logic. It simulates dynamic repression, detection, and intelligence gathering by the state and rival factions.

### **🎯 Core Concepts**

* **Police & Surveillance AI**: Local enforcement watches for open threats and suspicious behavior.
* **Infiltration Engine**: Factions and state actors can embed double agents into cells.
* **Counter-Surveillance Tasks**: Players deploy detection, vetting, or camouflage protocols.

### **🧠 Surveillance AI Logic**

State surveillance uses:

* **Pattern Recognition Models**: Based on player or faction task types, geography, heat trails.
* **District-Level Watch Scores**: Accumulated public-facing or violent activity.
* **Social Graph Analysis**: Detects closeness between known radicals and target characters.
* **Symbolic Flags**: SYLVA-layered suspicion based on emotionally resonant acts (e.g., martyrdom moments).

### **🧩 Infiltration Object**

json

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{

"agent\_id": "npc\_j\_chambers",

"cover\_identity": "youth\_organizer",

"affiliated\_org": "gov\_secret\_service",

"planted\_in\_faction": "student\_front",

"embedded\_since": "2031-09-03",

"trust\_score": 0.8,

"intel\_collected": ["meeting\_locations", "cadre\_psych\_evals"],

"exfiltration\_risk": 0.2,

"detection\_probability": 0.3,

"sabotage\_capability": 0.6,

"narrative\_flag": "eventual\_defection\_arc"

}

### **🔧 Counter-Infiltration Tools**

* **Vetting Tasks**: Background checks, ritual confirmation, emotional loyalty challenges (WREN-supported).
* **Surveillance Sweeps**: Bugs, tails, camera blackouts.
* **Misinformation Leaks**: Feed false plans to suspected infiltrators and monitor fallout.
* **Symbolic Triggers**: Use SYLVA-tagged moments (e.g., betrayal\_sim, loyalty\_test) to expose hidden actors.

Here’s the detailed expansion for the **Community Development & Dual Power System**, designed to sit alongside the scaffolding you've built in *Years of Lead*.

## **🌱 Community Development & Dual Power System**

Community organizing is more than support—it is the ideological foundation of parallel institutions. The **Dual Power** engine allows players to develop legitimacy through real material support, symbolic victories, and tactical positioning across neighborhoods and districts.

### **🧩 Community Node Model**

Each urban or rural district contains a dynamic **Community Node**, which tracks:

json

CopyEdit

{

"node\_id": "district\_southmill",

"population": 22000,

"sympathy\_index": 0.45,

"aid\_uptake": {

"medical": 3200,

"education": 1800,

"food": 4500,

"legal": 1250,

"housing": 1600

},

"service\_centers": {

"clinics": 1,

"food\_banks": 2,

"schools": 0,

"daycare": 1,

"free\_transit": false

},

"dual\_power\_index": 0.22,

"gov\_presence\_score": 0.65,

"surveillance\_risk": 0.3,

"public\_order\_score": 0.55,

"influence\_tags": ["communal\_legitimacy", "youth\_radicalization", "elder\_sympathy"]

}

### **🛠️ Player Capabilities: Communal Actions**

Each Task or Action within a node alters **dual power** metrics:

| **Task Type** | **Effect** |
| --- | --- |
| Set Up Clinic | Raises medical\_aid, reduces unrest |
| Teach Literacy | Raises education\_aid, boosts youth recruitment chance |
| Food Program | Increases sympathy, decreases hunger-driven crime |
| Tenant Organizing | Boosts housing control, may provoke landlord retaliation |
| Court Watch | Decreases state\_legitimacy, increases symbolic\_weight |
| Free Transit Route | Lowers gov\_presence\_score, but raises risk of sabotage |
| Mutual Aid Day | Major bump in sympathy\_index, adds event\_flag: "festival" |

Each community program can:

* Be **public or covert**
* Have **assigned coordinators**
* Be **attacked, co-opted, or sabotaged** by rival factions or government policy
* Grow into **symbolic hubs** (e.g. "Martyr’s School", "Red Hill Kitchen")

### **🧠 Dual Power Index (DPI)**

A district’s **Dual Power Index** is a composite score based on:

* Public reliance on revolutionary services
* Revolutionary symbolic control
* Presence of alternative governance structures
* Popular participation in mutual aid or assemblies
* Government withdrawal or collapse in the area

**High DPI Effects**:

* Elections may be boycotted or radically skewed
* Police response delayed or ineffective
* Revolutionaries gain free movement
* Counter-organizing becomes dangerous
* May trigger **autonomous zone status**

### **🕯️ SYLVA Symbolic Layer**

Community work generates **mythic resonance**, tagged with SYLVA metadata:

* *Healing\_arc*, *kindness\_resistance*, *bread\_before\_banners*
* If clinics are bombed: *ritual\_grief*, *innocence\_broken*
* Heroic educators generate *seed\_memory*, *legacy\_flags*

These tags influence:

* Public narrative events
* Cadre loyalty
* Factional splits or inspiration
* Long-form historical endgame scoring (e.g. “The Commune Lives On”)

### **💥 Adversarial Responses**

Government and rival factions may respond with:

* **Policy Retaliation**: zoning changes, cuts to utilities
* **Police Raids**: attacking food banks or evicting clinics
* **Propaganda War**: accusing programs of indoctrination or corruption
* **Fascist Violence**: targeted attacks on community leaders

Players can mitigate these with:

* Legal support cells
* Counter-propaganda
* Evacuation routes and security training
* Symbolic shields (e.g. children, elders, church space)

Here is the **Electoral Simulation & District Modeling** section, expanding your *Years of Lead* design with systemic detail and scaffolding components:

## **🗳️ Electoral Simulation & District Modeling**

**Years of Lead** features a fully integrated electoral system that dynamically responds to faction activity, public perception, and state legitimacy. The system simulates civic behavior under pressure, where democracy may be corrupted, weaponized, or resurrected through revolutionary participation or subversion.

### **🗺️ District Model**

The country is divided into multiple **Electoral Districts**, each modeled as a dynamic entity:

json

CopyEdit

{

"district\_id": "east\_end",

"name": "East End",

"population": 52000,

"registered\_voters": 32000,

"turnout\_rate": 0.44,

"dominant\_ideology": "liberal",

"local\_factions": ["new\_dawn\_coalition", "black\_sea\_movement"],

"election\_type": "mixed\_member\_proportional",

"recent\_events": ["event\_027", "event\_045"],

"gerrymander\_index": 0.15,

"corruption\_level": 0.35,

"polling\_results": {

"party\_a": 0.28,

"party\_b": 0.21,

"revolutionary\_faction": 0.14,

"undecided": 0.37

},

"heat": 0.42,

"surveillance\_index": 0.56

}

Each district maintains:

* **Voter Profiles**: ideologies, turnout modifiers, emotional flags
* **Poll Sensitivity**: how easily polling changes with events or propaganda
* **Election Infrastructure**: may be sabotaged, secured, or falsified
* **Key Swing Groups**: modeled as micro-demographics (e.g. dockworkers, clergy, students)

### **🧠 Electoral Simulation Engine**

Each electoral event (national or regional) tracks:

#### **1. Campaign Period:**

* Factions can field candidates, sabotage opponents, distribute manifestos, or initiate community drives.
* SYLVA-enabled symbolic influence adjusts emotional voter states (hope, betrayal, fatigue).
* Media framing, polling leaks, and sabotage affect turnout and opinion.

#### **2. Public Opinion Engine:**

Public opinion is tracked per district and nationally:

json

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{

"public\_opinion": {

"government": 0.34,

"main\_opposition": 0.22,

"revolutionary\_bloc": 0.18,

"abstentionist": 0.26

},

"swing\_tendencies": ["security\_fear", "mutual\_aid\_visibility"],

"symbolic\_pressure": ["martyr\_event", "civic\_poetry\_festival"]

}

* **Opinion Drift**: Affected by faction actions, major events, repression, and civic institutions.
* **Abstention vs Protest Vote**: Voter despair or anger modeled separately.

#### **3. Election Mechanics:**

Supports multiple systems (toggleable at game start):

* **First Past the Post**
* **Proportional Representation**
* **Mixed Member**
* **Single Transferable Vote**
* **Ranked Choice**

Each system alters player strategy, viability of insurgent candidates, and tactical voting patterns.

### **🔧 Tactical Actions in Electoral Phase**

Player or AI factions can:

* **Infiltrate polling commissions**
* **Field spoiler candidates**
* **Fake endorsements or media surveys**
* **Expose corruption for sympathy boosts**
* **Coordinate GOTV efforts with community centers**
* **Run narrative-heavy symbolic campaigns** (e.g. children’s choir peace performance)

### **🧩 Election Object**

json

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{

"election\_id": "nat\_leg\_2027",

"title": "National Legislative Elections, 2027",

"type": "mixed\_member\_proportional",

"districts": ["east\_end", "north\_crescent", "hollow\_vale"],

"date": "2027-10-14",

"turnout\_rate": 0.56,

"results": {

"party\_a": 112,

"party\_b": 88,

"revolutionary\_faction": 12,

"independents": 7

},

"resulting\_policies": ["military\_spending\_increase", "social\_welfare\_cap"],

"legitimacy\_score": 0.68,

"SYLVA\_tags": ["betrayed\_hope", "symbolic\_compromise"]

}

### **🎭 Symbolic Outcomes**

SYLVA and WREN modules attach narrative arcs to:

* Electoral betrayals
* Surprise victories
* Peaceful revolution via vote
* Coup attempts following loss
* Martyr-candidates killed or jailed mid-campaign
* Absurdist symbolic elections (e.g. landslide win for a dead revolutionary)

These become touchstones in memory systems for players and factions.

Here is the **expanded Referendum Mechanics module** for *Years of Lead*:

## **🗳️ Referendum Simulation System**

Referendums in *Years of Lead* serve as both **narrative flashpoints** and **mechanical pivots**. They function as population-wide decisions over polarizing issues—offering revolutionary and counter-revolutionary forces symbolic opportunities, traps, or accelerants for conflict.

### **📜 Referendum Types**

Referendums appear procedurally or via scripted events and may include:

* **Constitutional Referendum** – Rewrite the national charter.
* **Autonomy/Independence Vote** – Region declares or rejects sovereignty.
* **Emergency Powers Act** – Authorizes increased state repression or grants civilian oversight.
* **Economic Reforms** – Privatization, nationalization, labor laws.
* **Civic Questions** – Police oversight, amnesty for protestors, cultural bans.

### **⚙️ Mechanics of Referendum Play**

Each referendum has:

* **Proposal Text** – Written by state, opposition, or player coalition.
* **Framing Layer** – Narrative lens via propaganda, media, or symbolic acts.
* **Turnout Thresholds** – Based on trust in democracy, repression, or symbolic fatigue.
* **Result Thresholds** – Simple majority, supermajority, quorum.
* **Public Mood Anchors** – Trust, symbolic hope, betrayal memory, civic exhaustion.

Cadre may:

* Draft alternative referendum language.
* Lead boycotts or “null vote” campaigns.
* Stage symbolic acts around polling (funerals, burnings, mimic voting).
* Expose corruption in referendum logistics.

### **🧠 Voter Modeling Enhancements**

Referendum-specific emotional overlays include:

* **Hope vs Despair**: Do people believe change is possible?
* **Symbolic Legacy**: Have prior votes resulted in betrayal?
* **Faction Framing**: Does your movement call this vote liberation or trap?
* **Civic Engagement Fatigue**: Number of major votes + emotional toll.

Use of **SYLVA** augments symbolic interpretation, allowing voters to:

* Experience **narrative rupture** (e.g., when forced to vote against their beliefs).
* Engage with **symbolic artifacts** (e.g., photos of martyrs beside ballots).
* Feel **emotional contagion** if cadre or leaders frame the referendum effectively.

### **🪧 Faction Interventions**

Factions can:

* **Disrupt logistics** (steal ballots, dox officials, destroy voting stations).
* **Forge ballots** (requires infiltrators or black market help).
* **Manipulate media narrative** to sway sentiment.
* **Call symbolic boycotts** and use voter abstention as political pressure.
* **Conduct shadow referendums** in liberated zones to demonstrate self-governance.

State may:

* **Postpone or cancel votes** under pretext of instability.
* **Flood areas with propaganda** or military presence.
* **Fabricate turnout** or **forge outcome** in contested districts.

### **🎭 Narrative Outcomes**

Outcomes are not binary. Referendums can trigger:

* **Civic Dissonance Events** via WREN (e.g., “I voted yes, and now they bomb my clinic”).
* **Mass Mobilization** if the result aligns with faction ideology.
* **Crisis of Legitimacy** if voter expectation is violated by fraudulent count.
* **Internal Factional Collapse** if movement is split on referendum stance.
* **Diplomatic Ripples**, especially for independence referenda.

### **🧩 Integration with Other Systems**

* **Task System**: Cadre may be assigned to campaign, intimidate, or protect polls.
* **Event System**: Referendum day becomes a key Event with ripple effects.
* **Government System**: Result can shift policy, trigger martial law, or alter the constitution.
* **Surveillance System**: Ballot-related propaganda and agitation may attract state infiltration.

## **🕵️ Surveillance & Infiltration Simulation**

This system models how both the **state** and **factions** observe, monitor, and penetrate one another. It integrates deeply with the task, event, faction, and symbolic narrative systems, creating a **cat-and-mouse game of trust, paranoia, and strategic subversion**.

### **🔍 Surveillance Types**

#### **📷 State Surveillance**

* **Passive Monitoring**: Open-source intelligence from public actions (e.g. protest speeches, manifestos, graffiti tags).
* **Targeted Surveillance**: Tracked via camera networks, informants, bugs, and signal interception.
* **Metadata Profiling**: Heatmaps built from travel, supply pickups, and IP activity.
* **Dynamic Suspicion Ratings**: Each cadre and faction has a “state suspicion” meter from 0–100, adjusted by:  
  + Visibility of actions
  + Previous arrests
  + Media profile
  + Known associations

#### **🦑 Player Counter-Surveillance**

* **Surveillance Sweep Tasks**: Can detect bugs, tails, or compromised spaces.
* **Cover Identity System**: Cadres can operate under pseudonyms with forged docs, modulating visibility.
* **Operational Compartmentalization**: Networks can be siloed; compromised cells don’t expose all.
* **Physical Countermeasures**: Signal blockers, burner tech, low-profile travel.

### **🕳️ Infiltration Mechanics**

#### **👮 State Infiltration of Factions**

* **Informant Placement**: The state can embed low-level NPCs into your network.  
  + These can passively report on planning, or actively manipulate outcomes.
* **Agent Provocateurs**: May suggest escalation to trap the player (e.g. planned attack used to justify crackdown).
* **Blackmail & Flipping**: Captured cadres may become double agents.

All player-controlled cadres have a **Loyalty Meter**, with modifiers like:

* Prior imprisonment
* Personal ideology strength
* Psychological stress
* Blackmail pressure
* Emotional bond to leaders (via SYLVA)

When loyalty drops too low, *Infiltration Risk* rises.

#### **🧨 Player Faction Infiltration of Opponents**

* **Sleeper Tasks**: Place loyal cadres into enemy groups or state offices.
* **False Flag Ops**: Commit actions in other factions’ names to discredit them.
* **Surveillance Hijack**: Tap into police or agency feeds.
* **Covert Recruitment**: Convert low-ranking state actors or rival faction members over time.

### **🎯 Detection & Exposure System**

Detection attempts can be proactive or reactive.

#### **Detection Tasks:**

* **"Vetting Recruits"**: Background checks, loyalty tests, symbolic challenges.
* **"Clean Room Ops"**: Use isolated, zero-exposure cells for planning.
* **"Snitch Hunts"**: Induce betrayal with false information, track leak patterns.

Each successful detection may result in:

* **Exposure Event** (see Events System)
* **Morale loss** or **Symbolic rupture**
* **Internal split**, purges, or paranoia cascade

### **🧠 SYLVA/WREN Integration**

* Cadres may experience **symbolic hallucinations**, dreams, or intuitive signals when infiltration occurs.
* Leaders may undergo **emotional flashpoint events** tied to betrayal or trust dilemmas.
* SYLVA records faction trauma loops—e.g., “We trusted someone once and they burned our clinic”—which shift doctrine.
* Infiltrator narratives can trigger **dissonance arcs**, with game-state impact based on whether they are resolved through justice, revenge, or forgiveness.

### **🔄 Cross-System Ties**

* **Task Engine**: Surveillance and infiltration tasks are standard options.
* **Faction Engine**: Each faction has a paranoia stat influencing vetting and fragmentation risk.
* **Event System**: Major exposures or unmaskings become milestone Events.
* **Government State Engine**: Discovery of infiltration may trigger crackdowns, martial law, or negotiation.

Here is the **Community Development System** module to integrate into *Years of Lead*:

## **🌱 Community Development & Dual Power System**

This system models the creation of resilient, self-sufficient, and ideologically aligned local support structures—tools of **dual power**—to build credibility, sustain cadre morale, and contest the legitimacy of the state.

### **🏚️ Community Anchor Projects**

Players can assign cadre and resources to establish or support the following community services:

* **Free Clinics**: Increases local health, reduces vulnerability to state narrative. Unlocks medical training, “healer” cadre traits, and symbolic visibility.
* **Communal Kitchens**: Boosts neighborhood loyalty. Counteracts fear. Factions may compete over whose aid people rely on.
* **Mutual Aid Distributors**: Resource coordination hubs—link black market inputs to neighborhood outputs.
* **Childcare & Education Pods**: Increase long-term faction support. May introduce “youth radicalization” symbolic events or awaken a new generation of operatives.
* **Media Centers / Zine Presses**: Boosts propaganda efficacy. Creates symbolic memory channels and counter-narratives.
* **Defense Brigades / Watch Groups**: Temporarily reduce state policing efficiency and harassment. Increases risk of violent flashpoints or provocation framing.

Each Anchor Project has:

* BuildTime: How long it takes to start up.
* LocalImpactRadius: How many surrounding tiles it affects.
* UpkeepCost: Resource draw per turn.
* VulnerabilityRating: How easily it’s targeted or infiltrated.
* SymbolicSignature: Triggers memory arcs (e.g., “The Clinic that Survived the Siege”).

### **📊 Community Loyalty System**

Each district has:

* TrustLevel: How much locals trust your faction’s intentions.
* Dependency: How materially reliant they are on your networks.
* FearIndex: Are you seen as a stabilizer or a threat?
* CompetingFactions: Active presence of rival groups and their symbolic hold.

*Years of Lead* allows you to **intentionally ignore, protect, or exploit** these communities—SYLVA will record this. Abandoned or betrayed districts may never trust your faction again.

### **🌀 Community Events (Random or Faction-Triggered)**

* “State Raid on Kitchen”
* “Child Missing Near Defense Zone”
* “Neighborhood Holds Assembly to Reject Outside Activists”
* “Graffiti War Breaks Out”
* “Symbolic Planting Ritual Initiated by Locals”

Each has branching outcomes. You may gain a folk hero, lose legitimacy, face infiltration, or trigger inter-faction turf conflict.

### **🤝 Symbolic & Narrative Integration**

* **SYLVA embeds metaphoric weight**: “We are the roots beneath the state’s crumbling tree.”
* Communities gain **oral mythologies** based on your actions. Clinics become shrines. Teachers become symbols. Abandoning them has long-term moral cost.
* **WREN modules track emotional state** of long-term projects and anchor staff (cadres may burn out, become beloved, or radicalize further).

### **🪢 Intersections with Other Systems**

* **Surveillance & Infiltration**: Community centers may be tapped, informants embedded, or used for snitch vetting.
* **Prison Support**: Letters from imprisoned cadres can become rallying stories in mutual aid zones.
* **Government State Engine**: Positive community presence may force state to increase services, co-opt tactics, or clamp down.

Here’s a fully expanded module to integrate **crisis events and population trauma** into the *Years of Lead* simulation. This will feed directly into the existing **Event Object**, **Public Opinion**, and **Symbolic Index** systems.

## **⚠️ Crisis Event System & Population Trauma Modeling**

This system simulates **population-scale psychological, political, and symbolic responses** to major traumatic events—whether instigated by player factions, rival actors, government repression, or global triggers.

### **📉 Crisis Triggers**

Crisis Events are procedurally or narratively triggered by:

* **Terrorist actions** (false flag or real)
* **Government overreach** (e.g. massacres, blackouts, mass arrests)
* **Natural disasters**
* **Global geopolitical upheaval** (e.g. coups, financial collapse, war)
* **Revolutionary excess or missteps** (civilian deaths, failed riots, backlash from symbolic desecration)

Each trigger includes:

* event\_intensity: Low / Medium / High / Existential
* perceived\_responsibility: (0-1 value for each major faction + state)
* public\_scope: District / Urban Zone / National / Global
* coverage\_saturation: Fractional value influencing narrative spread and belief polarization

### **💥 Trauma Modeling**

Every district has a TraumaIndex:

* Ranges from 0 (calm) to 1 (paranoid breakdown)
* Increases via crisis events; decays slowly with time, healing, or symbolic reframing

**High TraumaIndex effects**:

* Public more vulnerable to propaganda or misinformation
* Increased recruitment into extreme factions
* Decreased participation in peaceful organizing
* Surge in conspiracy beliefs and erratic civic behavior
* Cadre members may **burn out, go rogue, or spiritually dissociate**

Cadre and key NPCs have an **individual trauma memory** log:

* Tracks perceived failures, losses, betrayals
* May affect behavior, loyalty, or trigger symbolic breakdowns (via SYLVA)

### **🕊️ Reframing & Response**

To address rising trauma, factions (especially player) may:

* Hold **healing ceremonies, truth commissions, or public memorials**
* Produce **documentary campaigns or zines** exposing truth behind events
* Engage in **grief work** via symbolic acts (e.g. planting trees, murals, naming clinics)

These produce:

* symbolic\_impact (mythic relief, dignity restoration, shame reversal)
* public\_opinion\_repair (reduce fear index, regain legitimacy)
* Possibility of creating **new origin myths or martyrs** if handled well

### **🎭 Narrative Integration via SYLVA/WREN**

Crisis events are SYLVA-critical moments:

* Can lead to *dissonance spirals* in factions or populations
* Trauma-index spikes can generate **ritual fracture loops** or **dream logic memories**
* Factions may gain permanent traits like:  
  + *"Born From Fire"*: Gain recruitment bonuses in trauma-saturated zones
  + *"Broken Witnesses"*: All cadre start with trauma flaws unless intervened

WREN models emotional state arcs post-trauma, including:

* Post-crisis apathy or zeal
* Survivor guilt
* Internal rationalization or spiritual fragmentation
* Rebuilding identity rituals (name changes, tattoos, vows)

### **🧬 Event Data Integration**

Add these fields to Event objects for crisis modeling:

json

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"trauma\_effects": {

"district\_trauma\_increase": 0.35,

"national\_trauma\_spike": 0.15,

"symbolic\_memory\_created": true,

"collective\_emotion\_triggered": "despair\_to\_defiance"

},

"population\_response\_modifiers": {

"propaganda\_vulnerability": 0.25,

"radicalization\_bias\_shift": 0.2,

"peace\_trust\_delta": -0.3

}

et’s now **expand the Electoral Simulation Layer**, including detailed mechanics for district modeling, voter behavior, public opinion modulation, factional electoral interference, and dynamic referendum design.

## **🗳️ Electoral Simulation & District Modeling System**

The Electoral Simulation Layer tracks the **political and democratic response mechanisms** within the game world, allowing public sentiment, faction actions, trauma events, and symbolic influence to manifest through **votes, elections, and referenda**.

### **🗺️ Electoral District Architecture**

* The fictional island is divided into **electoral districts** (15–40 recommended depending on scale).
* Each district object has:  
  + population\_size
  + demographic\_profile: age, wealth, ethnicity, religion, ideology
  + governance\_level: local autonomy or direct state control
  + swayable\_voter\_percentage
  + voter\_turnout\_modifier: affected by trauma, fear, mobilization
  + active\_factions: top 3 influencing factions
  + recent\_events: local memory of symbolic or traumatic actions
  + heat\_level: police/military saturation
  + media\_penetration: influence of national vs local narratives
  + election\_results\_log: history of electoral outcomes
  + radicalization\_index: how likely non-mainstream parties gain traction

### **🧮 Voting Simulation Core**

Each election or referendum calculates district-by-district:

1. **Base Loyalty Table**: Initial ideological breakdown (e.g. conservative 40%, centrist 30%, progressive 20%, radical 10%)
2. **Modifiers Applied**:  
   * Faction actions (propaganda, aid work, repression backlash)
   * Government acts (benefits, crackdowns, neglect)
   * Traumatic or symbolic events (e.g. martyrdom, scandal)
   * Media tone (exposure + spin from coverage)
   * Personalization (e.g. strong charismatic local candidate)
   * Heat/trauma: High heat may suppress turnout or increase protest vote
   * SYLVA events: Can trigger widespread symbolic shifts (e.g. “Mother’s March” softens voters)
4. **Vote Allocation**:  
   * Turnout computed
   * Percentages translated into seats or ballot success/failure
   * Player faction may win symbolic or actual political gains

### **⚖️ Election Types**

1. **District Elections**:  
   * Every 12–24 turns (1–2 years)
   * Elects district-level council or representative
   * Factions can infiltrate by running cover candidates
   * Fraud, coercion, or reform possible
3. **National Elections**:  
   * Executive power or constitutional control
   * Outcomes affect State Posture, legitimacy, negotiation availability
5. **Referendums**:  
   * Triggered via event chain or political consensus
   * Examples:  
     + “Abolish Military Police Authority?”
     + “Reform Food System toward Mutual Aid?”
   * Binary yes/no votes
   * High symbolic resonance

### **🏛️ Political Party System**

* Player can form or infiltrate parties.
* Each party has:  
  + platform\_vector: weighted ideology values
  + faction\_backers: overt or covert support
  + public\_legitimacy\_score
  + campaign\_funding
  + candidate\_roster
  + corruption\_factor
* Alliances, betrayals, co-option possible.

### **🎭 Narrative & Symbolic Influence**

SYLVA hooks enable:

* **Mythic Candidates**: Heroes or martyrs inspiring unlikely victory
* **Disillusion Cascades**: If voters feel betrayed, mass abstention or radical pivot
* **Trauma Ballots**: After crisis, votes may swing out of grief, rage, or fear
* **"False Unity" Campaigns**: Factions masking identities behind independent fronts

### **🧩 Data Hooks for Integration**

Every district should output:

json

CopyEdit

{

"district\_id": "seaside\_west",

"support\_scores": {

"green\_coalition": 0.25,

"player\_faction": 0.18,

"gov\_centrists": 0.42,

"neo\_industrials": 0.05,

"unaffiliated": 0.1

},

"voter\_turnout": 0.62,

"winner\_party": "gov\_centrists",

"swing\_due\_to\_event": "Riot in Fisherman’s Alley",

"symbolic\_narrative\_modifier": "Shame\_vs\_Strength"

}

## **🕵️ Surveillance, Infiltration & Countersurveillance System**

This subsystem simulates the **constant pressure of visibility, betrayal, and state monitoring** on the player’s organization and on all factions across the island. It creates a game loop of **hidden information, suspicion, vetting, defection, false trust, and exposure**.

### **📡 Surveillance Architecture**

**State surveillance actions** are managed by a specialized AI subsystem representing internal intelligence forces. These operate according to a covert initiative tracker, with capabilities scaling based on:

* **State Heat Level** (How threatened the regime feels)
* **Public Opinion Support for Crackdown**
* **Funding / Repression Budget**
* **Faction Visibility**
* **Event History (e.g. terror attacks, propaganda leaks)**

#### **State Intelligence Tools:**

* Tracking Devices
* Audio Bugs
* Informant Recruitment
* Cadre Tail Assignments
* Location Wiretaps
* Phone / Commlink Taps
* Fake Social Media Groups
* Drone Surveillance
* Symbolic Profiling (SYLVA-style targeting by myth/archetype presence)

Each **cadre member** has a dynamic traceability score, composed of:

* Public presence (protests attended, media appearances)
* Known relationships
* Risky actions undertaken
* Countermeasures applied
* Symbolic profile visibility

If a threshold is crossed, they are **targeted for tracking, arrest, or discreditation**.

### **🧬 Infiltration Engine**

The **state intelligence AI** or rival factions may attempt **infiltration or compromise** through:

1. **Fake Recruits**:  
   * Appear during open recruitment drives
   * Generate realistic backstories
   * May be detected via suspicion metrics or interrogation tasks
3. **Turned Cadre**:  
   * Existing NPCs may flip after trauma, blackmail, or bribery
   * Tracked with loyalty, fear, and personal history traits
5. **Lawyers, Lovers, Artists**:  
   * Secondary NPC roles may harbor alternate agendas
7. **Deep Cover Moles**:  
   * Long-term operatives in core roles
   * Trigger narrative betrayal arcs or legal collapse events

### **🛡️ Countersurveillance & Security Protocols**

Players (and other factions) can assign cadres to **vet**, **sweep**, and **cleanse** their ranks and safehouses.

#### **Cadre Actions:**

* Run Background Check (verify bio, history, arrest record)
* Conduct Loyalty Interview
* Inspect Communications Logs
* Change Meeting Spots / Routines
* Burn Identity + Reassign
* Sacrifice a Cadre to Feed False Info

Each of these adds **Stress** but lowers vulnerability.

### **🎭 Symbolic Surveillance (SYLVA Integration)**

SYLVA adds a **non-literal risk layer**:

* Certain player slogans, posters, or rituals may trigger symbolic flags.
* Cadres with high symbolic resonance (e.g. seen as prophets, martyrs) gain public influence but draw **mythological profiling** by the state AI.
* This enables **metaphor-level targeting**: e.g. an artist-spiritual leader gets watched more closely than a bomb maker.

### **📉 Exposure Events & Fail States**

Major exposures can cause:

* Mass arrests
* Data leaks (rosters, plans, supply lines)
* Public scandal (symbolic betrayals or moral discreditation)
* Faction morale collapse
* Trigger government escalation

### **🛠️ Mechanics Summary**

Each **faction/cadre/safehouse** has:

* visibility\_score
* infiltration\_risk
* security\_rating
* active\_countermeasures
* symbolic\_signature

Each **intel action** costs the state **time, attention, and budget**. The state cannot surveil everything at once, creating **windows for covert action**.

## **🏛️ Government State Simulation & Policy Engine**

This system models the dynamic, reactive behavior of the ruling regime. It is not static—it shifts in response to world events, factional pressure, economic crisis, and internal legitimacy. Its logic is governed by a state AI that simulates the evolving posture of the government across **repression**, **reform**, **negotiation**, and **collapse** vectors.

### **⚖️ Government State Model**

Each game turn, the **Government AI** evaluates its status across these core attributes:

* legitimacy: Public support for its continued rule (0.0 to 1.0)
* stability: Internal cohesion of its security, political, and bureaucratic wings (0.0 to 1.0)
* repression\_level: Intensity of ongoing crackdowns, surveillance, or violence (0–100)
* economic\_health: State-managed inflation, production, and unemployment (0.0 to 1.0)
* international\_standing: How foreign powers perceive the regime
* governance\_mode: Enum: NEOLIBERAL | MILITARIZED | TRANSITIONAL | TECHNOCRATIC | POST-COUP
* paranoia\_index: Float representing fear of plots and infiltration
* negotiation\_posture: Enum: REFUSAL | WATCHFUL | BACKCHANNEL | ACTIVE | DESPERATE

Each policy decision, surveillance act, or public scandal shifts these metrics.

### **🏗️ Policy Simulation**

The government does not only react—it enacts.

Policies are modeled as modular objects. Each has:

* name: "Emergency Curfews", "National Reconciliation", "Surveillance Expansion"
* category: SECURITY | CIVIL | WELFARE | ECONOMIC | FOREIGN | LEGAL
* trigger\_conditions: e.g. fear index > 0.5, international sanctions, legitimacy < 0.3
* effects: e.g. +10 repression\_level, −0.2 legitimacy, unlock negotiation\_posture: BACKCHANNEL
* duration: Permanent, temporary, or cyclical
* event\_dependency: Can be triggered by or linked to symbolic or media flashpoints

Policy implementation may cause:

* Cadre morale drop or spike
* Faction radicalization
* Protest or celebration events
* International blowback

### **🔄 Government Behavior Loop**

Every few turns, the state AI assesses:

1. **Crisis Pressure**
   * Event queue analysis
   * Faction proximity to symbolic or territorial control
3. **Legitimacy Decay**
   * Long-term decay triggers if no reforms are passed
   * Scandal or repression amplifies drop
5. **Escalation or Concession**
   * If stability is high and legitimacy is low → **escalate**
   * If both are low → **concede or negotiate**
7. **Hardening vs. Fragmentation**
   * The ruling coalition may harden (authoritarianism) or split (civil war risk)

The AI then selects from scripted and emergent **policy or posture actions**.

### **🕊️ Negotiation & Concessions**

Certain public events or faction actions unlock **negotiation arcs**.

Trigger conditions:

* High repression + high faction public support
* International mediation
* Symbolic tipping points (e.g. hunger strike martyrdom, national holiday riots)

Negotiation States:

* Informal Channels: Quiet backdoor diplomacy
* Media Trials: Public-facing bargaining
* Deal Offers: Amnesty, electoral reform, ceasefires
* Collapse Talks: Regime survival trades (e.g. exile in exchange for peace)

Each negotiation has:

* Demands ledger
* Trust and betrayal risk
* Factional dissent impact
* Timeline and sabotage risks

SYLVA can augment this with:

* *Symbolic consequence modeling*
* *Emotional stakes forecasting*
* *Betrayal mythos arcs*

### **🧨 Regime Collapse Conditions**

A state collapses when:

* Stability < 0.1 **AND** legitimacy < 0.2
* Or: Mass defections in army/security
* Or: Foreign invasion or loss of capital city
* Or: Coordinated faction uprising + symbolic event

Collapse can spawn:

* Transitional government (opportunity)
* Civil war (fracture)
* Foreign occupation (new game phase)
* Ethnic/religious partition (region modeling)

Each leads to a **phase shift** in gameplay.

## **🏙️ District Modeling Layer**

To capture political asymmetry, resource tension, and factional opportunity, the fictional island nation will be divided into **9 unique districts**, each with distinct characteristics affecting recruitment, surveillance, unrest, support levels, and strategic leverage.

### **📍 District Framework**

Each district is defined by:

* id: Unique district code (e.g. district\_01)
* name: (e.g. "Portside Union", "Old Capital", "Free Market Zone")
* population: Integer count (visible and hidden populations)
* dominant\_class: POOR | WORKING | MIDDLE | ELITE | MIXED
* economic\_role: INDUSTRIAL | COMMERCIAL | AGRICULTURAL | ADMINISTRATIVE | CULTURAL
* urban\_density: RURAL | SEMI-URBAN | URBAN | MEGABLOCK
* policing\_presence: LOW to HIGH
* state\_loyalty: Float (0–1)
* faction\_influence: Map of {faction\_id: 0.0–1.0}
* electoral\_weight: Integer (votes or seats)
* trauma\_profile: Map of {event\_tags: count}, used by SYLVA for symbolic unrest modeling
* event\_history: Historical tags for uprisings, massacres, famines, etc.
* district\_modifiers: Special rules or passive effects

### **🧭 Example District Archetypes**

1. **Portside Union**
   * Industrial shipping, strong union base, potential for sabotage and blockades.
   * Police response delayed by maze-like layout.
3. **Old Capital**
   * Cultural and historical center, home to national archives and religious symbols.
   * Ideal for symbolic actions and mythic resonance.
5. **Agrarian Crescent**
   * Poor, rural zone with little policing but hard to access.
   * Ideal for hidden camps, low visibility operations.
7. **Free Market Zone**
   * Commercial haven full of corruption and black-market networks.
   * High risk, high reward for criminal fundraising.
9. **State Administrative Core**
   * Bureaucratic HQ, highest surveillance and facial recognition.
   * Crucial for infiltration or false-flag media stunts.
11. **Inner Slums**
    * Densely populated, historically oppressed.
    * Rapid protest potential but easy for police kettling.
13. **University Precinct**
    * Intellectual radicals and media-savvy activists.
    * Frequent ideological splits and propaganda experiments.
15. **Ex-Military Zone**
    * Decommissioned barracks, armed local gangs, useful for arms theft or cadre training.
    * Government wary of rearming it.
17. **Foreign Enclave**
    * Hotspot for diplomacy, international NGOs, and espionage.
    * Can broker foreign aid or leak atrocities to international media.

### **🔁 District Dynamics**

Districts evolve via:

* Population shifts (refugees, repression)
* Event accumulation (bombings, media coverage, aid projects)
* Symbolic tipping points (martyrdoms, betrayals, disasters)

Player actions, factional ops, government policy, and random crisis events dynamically shift each district’s status, which can affect:

* Task success rates
* Police/faction response times
* Faction legitimacy
* Public support / fear / despair indices

### **🗳️ Integration with Electoral Simulation**

Each district is also an **electoral unit**, contributing to referenda and national elections. Players must:

* Choose where to focus support-building
* Protect vote integrity (vs. state fraud or fascist intimidation)
* Time symbolic acts around election cycles

District-level modeling makes it possible to simulate:

* Gerrymandering
* Rural vs. urban radicalization curves
* Regional referenda
* Occupation vs. persuasion strategies

Here’s the expansion for the **Electoral Simulation Layer**, with full technical scaffolding to fit into the systemic structure you've built:

## **🗳️ Electoral Simulation Layer**

The electoral system in *Years of Lead* simulates the dynamic interaction between political legitimacy, popular will, insurgency, and reactionary power. Elections and referendums serve as both high-stakes inflection points and legitimacy-testing mechanisms for factions—including the player’s.

### **⚙️ Core Components**

Each election is procedurally generated and influenced by:

* **District-Level Voting Behavior**: Based on public sentiment, faction influence, voter intimidation, media coverage, and symbolic events.
* **Election Type**:  
  + *Parliamentary Elections* (district-based party seat allocation)
  + *Executive Elections* (direct vote for presidency/PM)
  + *Referenda* (binary questions—e.g., amnesty, foreign treaty, policing powers)

### **📊 District Vote Modeling**

Each of the 9 districts contains:

* registered\_voters: Total legal electorate
* turnout\_modifier: Float based on mood, repression, weather, threats
* faction\_preference\_map: {faction\_id: float}, updated by propaganda, scandals, events
* electoral\_volatility: Measures likelihood of swing
* suppression\_factor: Models voter intimidation or absenteeism

Districts return:

* turnout: Calculated turnout % after modifiers
* votes\_cast: Distribution of support
* reported\_results: May differ from actual if fraud occurs

### **🧠 Political Memory & Symbolic Weight**

SYLVA tracks:

* Voter *emotional anchoring* (hope, disillusionment, betrayal)
* *Mythic interpretation* of candidates (liberator, martyr, tyrant)
* *Narrative legitimacy arcs* (underdog victory, stolen election, populist redemption)

This affects:

* Future election engagement
* Protest/revolt likelihood post-result
* Cadre morale and factional cohesion

### **🎲 Electoral Outcome Logic**

Results affect:

* **Government Composition**: New ministers, policies, repression curves
* **Factions**: Momentum boosts, demoralization, splits
* **Public Opinion**: Hope or despair spikes
* **State Heat**: Loss of election by ruling party may trigger emergency laws, crackdowns

### **🛠️ Electoral Simulation Object (per cycle)**

json

CopyEdit

{

"id": "election\_2028\_legislative",

"type": "parliamentary",

"districts\_involved": ["district\_01", "district\_02", "..."],

"registered\_parties": ["gov\_nationalist", "dsf", "front\_socialiste", "psl", "independents"],

"voting\_results": {

"district\_01": {

"turnout": 0.66,

"votes": {

"psl": 13200,

"gov\_nationalist": 22800,

"front\_socialiste": 8800

},

"fraud\_detected": true,

"actual\_vs\_reported\_delta": {

"psl": -3500,

"gov\_nationalist": +2500

}

}

},

"parliament\_composition": {

"gov\_nationalist": 31,

"psl": 12,

"front\_socialiste": 6,

"independents": 1

},

"media\_narrative": "contentious",

"public\_response": {

"support\_shift": -0.08,

"polarization": 0.2,

"street\_mobilization\_likelihood": 0.34

},

"symbolic\_resonance": {

"SYLVA\_tags": ["betrayal\_narrative", "false\_hope\_arc"]

}

}

### **🔄 Referenda Mechanics**

Modeled similarly but with simpler inputs:

* question\_text: "Should police powers be expanded?"
* support\_by\_district: Calculated using media influence + faction campaigning
* vote\_outcome: YES | NO with % breakdown
* Referenda may:  
  + Modify laws
  + Trigger symbolic shifts (e.g. constitutional betrayal)
  + Fracture factions (e.g. anti-police-wing breaks off)

### **🎯 Player Influence Mechanisms**

Player can:

* Deploy propaganda or exposés before election
* Sabotage other factions’ campaigns
* Forge ballots or leak election fraud
* Use elections as narrative traps (e.g., trigger protest post-loss)

## **🏛️ Government State Simulation**

The Government State is a dynamic, reactive entity with its own procedural logic, symbolic memory, and mechanical posture. It evolves across the game based on public pressure, internal faction disputes, elections, and crisis events. The player interacts with it through agitation, negotiation, sabotage, and symbolic engagement.

### **🎮 Core Systems**

#### **1. Government Composition Engine**

* **Branches**: Executive, Parliament, State Security, Civil Bureaucracy
* **Composition States**:  
  + Technocratic
  + Populist (left/right)
  + Militarist
  + Oligarchic
  + Transitional/Collapsing
* **Shifts Based On**:  
  + Electoral results
  + Faction threats
  + Public unrest levels
  + Elite response to foreign and domestic pressure

#### **2. Governance Metrics**

* legitimacy: Public trust in regime (0-1 scale)
* control: Actual coercive enforcement capacity (0-100)
* bureaucratic\_integrity: Ability to deliver services or enforce laws
* corruption: Modifier to efficiency, affects infiltration ease
* propaganda\_efficiency: Boosts/penalizes official narratives
* reform\_pressure: From international or civil sectors

#### **3. Policy Response Tree**

Triggered by faction actions, public unrest, or crises:

* **Soft Containment**: media manipulation, grants, negotiations
* **Hard Containment**: surveillance, arrests, targeted disinfo
* **Escalation**: curfews, raids, broad censorship, military deployment
* **Fascistization Path**: enables blacksite use, mass trials, repression
* **Collapse State**: governance breaks down, faction power vacuums arise

### **🌀 Symbolic Governance (SYLVA Hooks)**

The state has *archetypal narrative states* that shift in tone and public perception:

* **The Father** (benevolent protector vs. abusive patriarch)
* **The Machine** (efficient bureaucracy vs. faceless terror)
* **The Wound** (suffering state seeking healing)
* **The Mask** (pretender democracy hiding repression)

These influence:

* Emotional resonance of laws
* Player morale and faction recruitment
* Narrative shaping of resistance or collaboration arcs

### **🔀 State Decision System**

At every turn, the government can:

1. **React** (e.g., respond to protest, suppress faction)
2. **Preempt** (e.g., deploy informants, pass laws)
3. **Reframe** (e.g., broadcast narrative, frame opposition)
4. **Negotiate** (e.g., approach player/factions for truce or compromise)

### **📉 Collapse Mechanics**

The government can enter:

* **Legitimacy Crisis**: loss of public support opens space for radicals
* **Control Crisis**: mass defections or paralysis in enforcement
* **Narrative Collapse**: SYLVA detects dissonance between myth and action
* **Institutional Collapse**: state becomes fractured across factions or warlords

### **🧩 Example State Object**

json

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{

"id": "gov\_01",

"regime\_type": "Populist Nationalist",

"legitimacy": 0.42,

"control": 78,

"propaganda\_efficiency": 0.67,

"bureaucratic\_integrity": 0.5,

"symbolic\_state": "The Mask",

"policy\_flags": ["curfews", "media restriction"],

"recent\_events": ["election", "mass protest", "international rebuke"],

"available\_actions": ["surveil\_faction", "issue\_grants", "increase\_repression"],

"reform\_pressure": 0.3,

"fascist\_threshold": 0.71,

"collapse\_threshold": 0.2

}

### **🧩 Technical Scaffolding (for Cursor)**

* GovernmentState class or module that hooks into:  
  + CrisisManager
  + FactionHeatMonitor
  + SymbolicMemory (SYLVA)
* evaluate\_government\_posture() runs every turn or triggered event
* apply\_policy\_change() updates world state and faction reactions
* Narrative logic outputs to WREN hooks for flavor text, dream logic, public myth propagation

## **🏛️ Government State Simulation**

The government in *Years of Lead* is not static or monolithic—it is a responsive, multi-layered actor with its own internal logic, factions, vulnerabilities, and adaptive capacity. The player’s revolutionary movement operates within and against this evolving state apparatus, which can shift toward fascism, collapse under internal contradictions, or liberalize under pressure.

### **🧩 Core Structures**

#### **🗂️ Government Class Structure**

* regime\_type: Populist | Technocratic | Militarist | Liberal | Transitional | Collapsing
* branches: Executive, Parliament, Civil Services, Security Apparatus
* power\_balance: Defines dominance between civilian vs. military actors
* leadership: NPC profiles (e.g., President, Prime Minister, Interior Minister)

#### **🔄 Governance Metrics**

* legitimacy: (0–1) Public trust in government
* control: (0–100) Coercive capacity to enforce laws and suppress unrest
* bureaucratic\_integrity: (0–1) Efficiency of civilian institutions
* corruption\_level: (0–1) Affects bribe viability, mission leakage, etc.
* repression\_level: (0–100) Determines frequency of raids, arrests
* propaganda\_efficiency: (0–1) State narrative control strength
* fascist\_incline: (0–1) Risk of authoritarian spiral
* collapse\_pressure: (0–1) Threshold toward state breakdown

### **🧠 Narrative State Model (SYLVA Hooks)**

The symbolic expression of the state affects how people *feel* about it. SYLVA parses public narrative arcs into archetypes that influence gameplay:

* **The Guardian**: High legitimacy + low repression — public sees state as protector.
* **The Machine**: High control + high bureaucracy — emotionally cold, efficient, but alienating.
* **The Mask**: Moderate legitimacy + high propaganda — disconnect between words and actions.
* **The Wound**: Low legitimacy + high collapse — trauma-drenched, memory of a state.

These symbolic masks affect:

* **Public opinion shifts**
* **Narrative outcomes of events**
* **Factions’ recruitment bonuses or penalties**
* **Mood of civil society and media tone**

### **🧩 Procedural Behavior Tree**

Each turn, the state takes an **Action Phase** governed by its internal priorities:

1. **Security Response Phase**
   * Monitor faction activity
   * Arrest high-heat cadre
   * Deploy informants
   * Escalate repression (curfews, surveillance drones, martial law)
3. **Narrative Control Phase**
   * Broadcast state propaganda
   * Censor dissenting media
   * Issue counter-narratives to events
5. **Policy Enactment Phase**
   * Introduce laws based on current fear level, polarization, and faction threat
   * Examples:  
     + "Anti-Subversion Act" = +surveillance power
     + "Unity Restoration Law" = faction ban attempt
7. **Public Gesture Phase**
   * Call for national unity
   * Pardon nonviolent actors (if liberalizing)
   * Propose negotiations
9. **Reaction to Major Events**
   * State *must* respond to events tagged symbolic\_shock, massacre, or international\_flashpoint

### **💥 Collapse Model**

The government can collapse via:

* **Narrative Failure**: People stop believing its story
* **Institutional Hollowing**: Bureaucracy stops functioning
* **Loss of Monopolized Violence**: Security forces split or disobey
* **Symbolic Rot**: Public trauma exceeds containment (SYLVA metric)

Leads to:

* Warlordism
* Emergency technocracy
* International intervention
* Factional open war

### **🔨 Cursor Scaffolding Tasks**

To hand off to Cursor or Windsurf:

* GovernmentState class
* evaluate\_government\_behavior() method (turn-cycle AI)
* apply\_policy\_response() function
* symbolic\_state\_parser() SYLVA input/output node
* collapse\_trigger\_check() that integrates with EventSystem, FactionHeatMonitor, and PublicOpinionTracker

## **🧩 SYLVA/WREN Integration API Flow**

### **📌 Overview**

SYLVA and WREN form the symbolic and emotional substrate beneath gameplay systems in *Years of Lead*. They do **not control mechanics**, but instead enrich narrative coherence, simulate emotional weight, and create emergent resonance arcs tied to gameplay outcomes.

### **🔄 API Integration Flow**

#### **1. SYLVA Evaluation Trigger Points**

SYLVA should be invoked in the following circumstances:

* When a **Task** is created, completed, or fails.
* When an **Event** is generated or resolved.
* When a **Faction** experiences a major shift (schism, martyrdom, betrayal).
* When a **Cadre** actor experiences trauma, loyalty shift, burnout, or personal arc development.
* When a **Government policy** triggers significant repression or concession.

#### **2. SYLVA API Call Structure**

python

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SYLVA\_input = {

"entity\_type": "task" | "event" | "cadre" | "faction",

"symbolic\_context": {

"keywords": ["martyrdom", "betrayal", "subversion", "hope", ...],

"emotional\_arcs": ["dissonance", "solidarity", "abandonment"],

"actor\_role": "perpetrator" | "witness" | "victim" | "agent",

"public\_exposure": 0.0 to 1.0,

"media\_tone": "positive" | "negative" | "ambiguous",

"faction\_alignment": "player" | "opponent" | "neutral",

"historic\_weight": float (0.0 to 1.0)

},

"game\_state\_context": {

"heat": int,

"morale": float,

"polarization": float,

"active\_districts": [...],

"recent\_events": [event\_ids]

}

}

Returns:

python

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SYLVA\_output = {

"symbolic\_impact\_score": float (0.0 to 1.0),

"narrative\_resonance\_type": "ritual\_reckoning" | "echo\_of\_trauma" | "cultural\_fork" | ...,

"emotional\_feedback": {

"faction\_shift": {"loyalty": +0.1, "paranoia": +0.3},

"cadre\_state": {"burnout": True, "ideological\_waver": False}

},

"triggered\_callbacks": ["WREN\_manifesto\_update", "CadreJournalingPrompt"],

"recommended\_flavor\_text": "Despite the public silence, whispers called him a broken phoenix. Something had changed."

}

### **🧠 WREN Manifesto & Reflection Hooks**

WREN governs:

* **Symbolic Manifesto Updates**: When your movement's ideology evolves in response to trauma or success.
* **Cadre Journaling**: Dream-like reflections after missions; used for debriefing and decompressing.
* **Public Impressions**: Generates abstract slogans, graffitis, murals, and oral myths.

Use this sample WREN hook:

python

CopyEdit

WREN\_input = {

"cadre\_id": "eli\_rojas",

"recent\_task": "infiltration\_failure",

"SYLVA\_resonance\_type": "shattered\_purpose",

"faction\_context": {

"doctrine": "mutualist",

"recent\_splits": True,

"morale": 0.45

}

}

Returns:

python

CopyEdit

WREN\_output = {

"manifesto\_update": "We are the promise and the pause. No more bright lies from shadowed hands.",

"journal\_entry": "He still hears the boots on wet concrete. No words came. He watched the door shut. Again.",

"symbolic\_tags": ["doubt", "echo", "reorientation"],

"suggested\_flavor\_text": "The night after the operation, he didn’t speak. Just stared at the crack in the ceiling."

}

### **🧠 SYLVA + WREN in Gameplay Context**

| **Game Layer** | **SYLVA Role** | **WREN Role** |
| --- | --- | --- |
| Task Resolution | Modulates symbolic heat, loyalty, morale shifts | Creates introspective flavor, burnout logs |
| Events | Measures public resonance, mythic weight, grief/fear impact | Symbolic event summary or rumor engine |
| Faction Arcs | Interprets betrayal, martyrdom, doctrine shifts | Generates internal manifestos, zines, rumors |
| Government Repression | Interprets trauma, dissociation, or galvanization | Creates reflective counter-messaging, slogans |
| Player Journaling | Offers dream-logic summaries of cause/effect | Generates metaphorical journal entries |

## **🧱 Part 6: Modular UI/UX Components**

While implementation may vary by engine or front-end tech (e.g. React, Unity, Godot), here are **suggested modular UI elements** and how they interact with system state.

### **🪧 Primary Game Layers**

| **Component** | **Functionality** |
| --- | --- |
| **District Map View** | Interactive zones with heat indicators (repression, support, unrest) |
| **Faction Panel** | Shows doctrines, behavior trees, mood, and symbolic footprint |
| **Cadre Roster** | Portrait-based interface showing loyalty, stress, traits, current tasks |
| **Task Board** | Issue new orders via drag/drop or decision trees |
| **Event Feed** | Dynamic news ticker for media reactions, trauma events, and world state |
| **SYLVA Window** | Symbolic introspection, dreams, inner monologue, journaling prompts |
| **Elections Interface** | Live polling, district-level data, gerrymandering overlays |
| **Surveillance Monitor** | Heat, detection logs, and exposed operations visualized as a timeline or spidergraph |
| **Crisis Alert Dashboard** | Pop-up flags for trauma bursts, faction fracture, symbolic rupture, player burnout |

## **🧱 Part 7: Core Database Schema (Modular, NoSQL / Relational Hybrid)**

This schema can be adapted to SQL (PostgreSQL) or a NoSQL structure (MongoDB). Key tables/collections:

### **🔗 factions**

json

CopyEdit

{

"id": "faction\_001",

"name": "Free Education Front",

"doctrine": "dual\_power",

"heat": 55,

"symbolic\_index": {

"mythic": 0.6,

"dissonance": 0.1,

"iconic\_nodes": ["library\_occupation", "teacher\_martyrdom"]

},

"public\_support": 0.34,

"cadre\_ids": [...],

"relationships": {

"player": "ally",

"faction\_002": "rival"

}

}

### **🔗 cadres**

json

CopyEdit

{

"id": "cadre\_roza",

"name": "Roza Matthisen",

"skills": ["speechcraft", "first\_aid", "organizing"],

"loyalty": 0.75,

"stress": 0.22,

"current\_task": "task\_105",

"personality": { "openness": 0.8, "loyalty\_type": "symbolic", "burnout": 0.1 },

"trauma\_flags": ["betrayed\_cell", "torture\_exposure"]

}

### **🔗 districts**

json

CopyEdit

{

"id": "university\_district",

"support\_left": 0.55,

"support\_right": 0.15,

"repression": 0.3,

"unrest": 0.6,

"gerrymandered": true,

"population\_traits": {

"students": 0.4,

"workers": 0.3,

"unemployed": 0.1

}

}

## **🧱 Part 8: Procedural Manifesto & Narrative Templates**

These can be powered by **WREN** or basic grammar-template systems. Suggested modules:

### **✍ Manifesto Generator Inputs**

* Ideological alignment
* Recent trauma or oppression
* Symbolic event triggers
* Desired tone (e.g. defiant, mournful, utopian)

**Example Output**:

“We remember the blood on the library steps. We will no longer beg for freedom from a government that fears books more than bullets. Let it be known — education is not a privilege. It is our battleground.”

### **✍ Dream/Narrative Generator**

Used for SYLVA integration in trauma loops, cadre reflections, or symbolic rupture moments.

**Sample Archetypes**:

* "Child in fire" → unresolved guilt loop
* "Empty station" → abandonment, failure of ideology
* "Shadow of the city" → fear of betrayal or loss of identity

These can be conditionally seeded from symbolic\_state and cadre profile traits.

## **🧱 Part 9: Threat Modeling & QA Simulation Framework**

To harden the simulation, Cursor engineers should build or stub:

### **🔐 Adversarial Test Harness**

* **Fuzzing event input** for malformed symbolic states
* **Heat curve stress tests** (massive cascading repression + events)
* **Edge task chains**: recursion between low-skill cadres and high-risk outcomes
* **Betrayal spam**: mass betrayal simulation to check state corruption

### **🧪 Scenario Playtest Modes**

* Debug toggles for full faction AI visibility
* Adjustable symbolic visibility toggles (how much the player can "feel")
* Turn-by-turn rollback buffer to allow loop regression testing
* Flag invalid symbolic states (e.g. cadre dreams about events they never saw)

## **🧠 Part 10: SYLVA-Specific Embedding & Symbolic State Integration**

SYLVA operates on symbolic resonance rather than raw token classification. To integrate it:

### **🔄 Symbolic Memory Embeddings**

Maintain a lightweight vector store of:

* Faction symbolic identities (liberator, martyr, false flag)
* Cadre emotional arcs (redemption\_loop, trauma\_loop, shatter\_point)
* District mythic presence (cradle\_of\_uprising, ashes\_of\_order)

Use cosine similarity on prompts like:

*“What does this event mean in the mythic memory of the port workers?”*

Return:

json

CopyEdit

{

"symbolic\_weight": 0.83,

"resonance": "solidarity\_born\_in\_suffering",

"emotional\_trigger": "shared\_loss"

}

### **🔄 Journal Integration**

Let SYLVA offer dream-logic narration like:

“You find yourself speaking with a statue of your dead friend. It asks: ‘Was it worth it?’”

Store all SYLVA echoes in:

* symbolic\_log[]: Narrative dream-fragments
* reflective\_traits[]: Emotional growth toggles
* narrative\_flags[]: Boolean tokens like resolved\_guilt, internal\_burnout, ruptured\_belief

Use them to modulate:

* Cadre loyalty/stress/betrayal risk
* Faction doctrine shift rates
* Negotiation tone between government and insurgents

## **🔁 Part 11: Turn Cycle Manager Logic**

Years of Lead operates on a **turn-based time system** with these layers:

### **Base Cycle**

Each turn = 1 week.

* All tasks tick once.
* Cadre stats update.
* Government surveillance ticks.
* District modifiers update.

### **Tick Order**

1. **Resolve player task queue**
2. **Run AI faction behaviors**
3. **Process random/world events**
4. **SYLVA reflections phase**
5. **Government simulation pass**
6. **Output update feeds**

### **Optional Layers**

* **Microturns** (e.g. daily updates) for advanced surveillance/policing simulation
* **Seasonal cycles** — morale boost during holidays, weather impacts on protests
* **Turn tempo modulation** — Slow down for major trauma events (player must “sit with it”)

## **📊 Part 12: CSV/JSON Export & Import Protocols**

To enable extensibility, open-source contributions, or third-party scenario editors:

### **Suggested Export Objects:**

* cadres.json
* districts.json
* tasks.csv
* faction\_behavior\_logs.csv
* symbolic\_memory\_store.json

### **Use Cases:**

* Researchers analyzing radicalization arcs
* Modders injecting new historical conflicts
* Therapists applying the engine to roleplay-based trauma modeling

SYLVA and WREN modules can output symbolic logs separately to:

* sylva\_reflection\_log.json
* emotional\_trajectories.csv

Each record should be time-stamped, trait-linked, and narrative-anchored.

## **🧩 Part 13: Engine-Specific Plugin Suggestions**

If using **Godot** or **Unity**, consider:

### **🎮 Godot**

* **State machine framework**: Use Godot’s StateMachine node extension for faction AI
* **GDScript Embedding**: Wrap SYLVA calls with async coroutine-style hooks
* **UI Nodes**: Leverage RichTextLabel with BBCode for narrative output. Animate symbolic dreams as layered CanvasLayers with filters for surrealism.

### **🎮 Unity**

* **ScriptableObjects** for faction/cadre/task storage
* **Cinemachine + Timeline** to render symbolic memory scenes
* **Odin Inspector** for structured data debugging
* **Unity Addressables**: Dynamically load faction assets or district overlays
* **Async Narrative Coroutine System**: Let WREN/SYLVA prompts appear as “cutscenes” or interactive monologue segments

## **🧠 Bonus: SYLVA/WREN Developer Personas**

You may define developer/testing personas to simulate various emotional states and stress reactions during QA.

* **Persona: Burned Idealist**
  + Crumbles if too many betrayals accumulate
  + Notes symbolic arc inconsistencies
* **Persona: Sadistic State**
  + Tests government behavior in full repression loops
  + Flags unrealistic player victory paths
* **Persona: Naïve Activist**
  + Tries diplomacy at every opportunity
  + Logs emotional arc breakpoints for narrative collapse

## **📚 WREN Symbolic Prompt Library (Initial Sample Set)**

These prompts are used for:

* Generating manifestos
* Modeling trauma
* Triggering cadre breakdowns
* Logging internal faction rifts

### **1. Manifesto Generator Prompt**

json

CopyEdit

{

"input\_context": {

"faction\_doctrine": "horizontalist mutual aid",

"recent\_events": ["leader jailed", "community center burned"],

"public\_opinion\_score": 0.42

},

"prompt": "Write a manifesto excerpt for the public that reframes recent losses as fuel for solidarity. Invoke the dream of decentralized belonging."

}

🡆 **Expected Output (Text + Tags):**

“We are not broken. The flames only revealed the roots. Our dream was never held in buildings—it lives in bread passed hand to hand.”

* tags: ["resilience", "roots", "burning\_hope", "decentralized\_myth"]

### **2. Cadre Breakdown Prompt**

json

CopyEdit

{

"cadre\_profile": {

"name": "Imani",

"stress": 0.9,

"betrayal\_event": true,

"dream\_log": ["the sea won’t take me back"]

},

"prompt": "Write Imani's internal monologue as she considers leaving the movement."

}

🡆 **Expected Output:**

“I walked too far into this fire. I thought it was light. Now every time I close my eyes, I see the boy’s hands shaking.”

* emotion\_flags: ["burnout", "haunted", "loyalty\_tested"]

## **🧪 Symbolic Test Scenarios & Flag Expectations**

To validate integration, include a symbolic test pass for each major WREN/SYLVA function:

### **Scenario 1: Community Trauma Cascade**

**Trigger**: Riot causes civilian deaths.  
 **Expected SYLVA output**:

* public\_emotional\_state.port\_district: ["grief", "betrayal", "anger"]
* symbolic\_weight: 0.78
* recommended\_event\_tags: ["flashpoint", "potential\_martyr", "ritual\_reckoning"]
* SYLVA\_resonance\_type: "grief\_resistance"

### **Scenario 2: Betrayal by Faction Split**

**Trigger**: Faction A leader found collaborating with State.  
 **Expected Outputs**:

* symbolic rupture flag: true
* cadre\_loyalty.drop: >20%
* auto-generated dream entry:  
     
  “He wore our colors, but his voice spoke in shadows.”
* faction doctrine shift: 3% toward paranoia-militarism

### **Scenario 3: Heroic Uplift Moment**

**Trigger**: Community hospital protected from police raid.  
 **Expected Outputs**:

* district\_hope\_score: +15%
* new public mythic tag: "healing\_line\_held"
* faction symbolic memory:  
     
  “We built a wall of arms, and the children slept behind it.”

## **🧩 SYLVA Emotional State Manager (Plugin Blueprint)**

This is a subsystem that tracks symbolic and emotional arcs over time.

### **🎛 Core Schema:**

ts

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interface EmotionalState {

stress: number; // 0.0 to 1.0

loyalty: number; // 0.0 to 1.0

symbolic\_fatigue: number; // how ‘burned out’ their mythic self is

dream\_log: string[]; // surreal fragments from WREN

dissonance\_flags: string[]; // betrayal, lost cause, guilt loops

resolved\_arcs: string[]; // e.g. “absolved guilt”, “rebuilt trust”

}

### **🎯 Update Functions:**

ts

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function applyEventImpact(state: EmotionalState, event: GameEvent): EmotionalState {

if (event.symbolic\_value.dissonance\_trigger) {

state.dissonance\_flags.push("ruptured\_narrative");

}

state.stress += event.affected\_public\_opinion.fear\_index \* 0.2;

state.loyalty -= event.affected\_public\_opinion.polarization\_delta \* 0.1;

state.symbolic\_fatigue += event.symbolic\_value.mythic\_weight \* 0.15;

return state;

}

## **🔄 Suggested Plugin Locations**

**Unity**:

* EmotionalStateManager.cs → Singleton Service
* Attach to Cadre ScriptableObject → Trigger updates on task results and WREN feedback

**Godot**:

* EmotionalState.gd → AutoLoad singleton or child of CadreManager.gd
* WREN output streamed into dream\_log[]
* Use a BBCodeLabel to show recent symbolic memory fragments

## **🌿 Sample Dialogue Tree: Burnout Spiral**

**Cadre**: Imani  
 **Context**: Imani just returned from a failed sabotage mission where her comrade was killed. Her emotional state includes high stress (0.88), low loyalty (0.35), and symbolic fatigue ("lost thread").

**Player (if approaching gently):**

“You’ve carried too much alone. Do you want to rest? I can take the next risk.”

**Imani (if loyalty > 0.4):**

“I want to believe that. I want to believe someone else still knows the way.”

*Emotional tag*: [hope flicker]

*Dream log entry*: *"A second torch in the dark."*

**Imani (if loyalty < 0.4):**

“You say that, but the dead don’t hear promises.”

*Symbolic rupture trigger*: guilt loop

*Flag*: cadre at risk of desertion

**Player (if pressing her to continue):**

“This isn’t the time to fall apart. We need you sharp.”

**Imani (if symbolic fatigue > 0.7):**

“You don’t need me. You need a myth. I stopped being one weeks ago.”

*Dissonance flag set*: "depersonalization"

*Dream log*: "They wear my name but not my skin."

## **🔥 Sample Dialogue Tree: Betrayal Fallout**

**Cadre**: Yusuf  
 **Context**: A faction split has occurred. Yusuf remains loyal, but his brother defected. His stress is moderate, but betrayal trauma is fresh. Symbolic fatigue is low.

**Player (soft approach):**

“Your brother made a choice. That doesn’t have to define you.”

**Yusuf (loyalty > 0.6):**

“No. But I can’t pretend I didn’t walk beside him when he built the road.”

*Emotional tag*: [fractured bloodline]

*SYLVA resonance type*: shame dissociation

**Player (aggressive):**

“He turned his back on us. If you hesitate, maybe you should follow.”

**Yusuf (high discipline, moderate loyalty):**

“Then I’ll stay to prove what I believe. And you’ll see it in every scar I earn.”

*Loyalty +0.1*

*Symbolic imprint created*: "scar\_witness\_oath"

**Yusuf (low loyalty < 0.4):**

“If we start testing each other like enemies, we’ll forget who the real ones are.”

*Betrayal threshold rolls next turn*

## **🪞 Sample Dialogue Tree: Dream-Like SYLVA Encounter**

**Cadre**: Alma  
 **Context**: After a bombing, Alma suffered trauma and began experiencing narrative dissociation. She speaks in dreamlike metaphors. The player can choose to follow her logic or confront it.

**Player (align with metaphor):**

“The garden’s gone quiet. Are the roots still alive?”

**Alma (if trust > 0.5):**

“The roots sleep under the ash. But one root remembers fire and will not bloom.”

*Symbolic arc activated*: memory of fire

*Cadre gains +1 in loyalty if next mission succeeds*

**Player (direct challenge):**

“I need you to speak plainly. We don’t have time for riddles.”

**Alma:**

“Then I am not the one you need. The plain ones are already dead.”

*Dissonance tag*: [alienation]

*Loyalty -0.1, stress +0.2*

## **🛠️ Developer Integration Notes**

* **Emotion thresholds** drive which branch is activated.
* Each branch updates the **SYLVA** dream\_log[], **loyalty**, **stress**, or symbolic tags.
* Dialogue trees can chain into **WREN-generated poetic monologues**, **flashback scenes**, or **faction reaction scripts**.
* Design system to cache last 3 symbolic memory tags for later dream reference (e.g., betrayal arcs, sacrifice scars, etc).

### **1. “Did We Become the Thing We Fought?”**

**Cadre**: Marwa  
 **Context**: The player approved a bombing that killed civilians by accident. Marwa, a disciplined propagandist, confronts the fallout.

**Player Options**:

* **“War has casualties. We didn’t start this.”**
* **“We lost the thread. This can’t happen again.”**

**Marwa Response (loyalty > 0.6, symbolic fatigue < 0.5)**:

“If we didn’t start it, why do I dream of their screams? I wanted a revolution, not a funeral.”

*Effect*: +0.1 dissonance | adds night\_screams to dream\_log.

**Marwa Response (loyalty < 0.4)**:

“There are lines you cross that erase who you were. And I don’t know who we are anymore.”

*Effect*: Flag loyalty fracture pending | symbol: mirror\_cracked.

### **2. “The Informant’s Kid”**

**Cadre**: Simo  
 **Context**: An informant's teenage child was caught in a cadre's reprisal. The player ordered the mission.

**Player Options**:

* **“He knew the risks when he talked.”**
* **“We shouldn't have touched the family.”**

**Simo (high loyalty, moderate fear)**:

“You taught me to listen to conscience. That’s what made us different. Now it sounds like static.”

*Symbolic Tag*: conscience\_jammed

*Effect*: May suppress fear in next mission, but raise symbolic fatigue over time.

**Simo (low loyalty, high fear)**:

“Do we become beasts to slay beasts? Or have we just become beasts who quote poetry?”

*Trigger*: identity\_shatter | +0.2 fear | faction morale -1 if leaked.

### **3. “The Traitor’s Plea”**

**Cadre**: Arnaud  
 **Context**: A captured ex-cadre begs for mercy. Player can choose to execute, imprison, or release.

**Player Options**:

* **“He’s a virus. He dies.”**
* **“He was one of us. He gets a trial.”**

**Arnaud (justice-valuing, trauma-exposed)**:

“If we silence him like they do… how are we any different than the regime?”

*Symbolic Flag*: echo\_of\_them

*Possible Response Tree*: Arnaud may refuse future orders without moral context.

**Arnaud (bloodthirsty trait unlocked)**:

“Mercy is what they use to survive us. Not today.”

*Effect*: Faction fear rating increases in population. *Morale split event* may trigger.

### **4. “The Stolen Vaccine Crate”**

**Cadre**: Kaori  
 **Context**: A shipment of vaccines was stolen and redirected to cadre clinics instead of a neutral refugee camp.

**Player Options**:

* **“Our people first.”**
* **“We send half. It’s not ours to hoard.”**

**Kaori (if symbolic dissonance high)**:

“They’ll remember who left them to die. And that memory will grow sharp teeth.”

*Symbolic impact*: future vengeance tag assigned.

*SYLVA resonance*: moral\_abandonment

**Kaori (if loyalty low)**:

“Revolution isn’t triage. It’s a vow. Break that, and we become triage nurses for a dying dream.”

*Flag*: principled\_breaker | May leave faction or radicalize.

### **5. “Cameras in the Commune”**

**Cadre**: Lucien  
 **Context**: The player proposes surveillance to detect infiltrators, including hidden cams in allied communal spaces.

**Player Options**:

* **“Security means seeing everything.”**
* **“Trust matters more than intel.”**

**Lucien (if privacy trait high)**:

“We built this to feel safe. Now we watch each other like the old days. Maybe the mirror eats us after all.”

*Trigger*: surveillance\_dread

*Symbolic arc shift*: from trust\_in\_earth → roots\_cut\_by\_wires

**Lucien (if fear > 0.75)**:

“If it keeps the wolves out, fine. But don’t expect me to smile while I rot inside.”

*Effect*: +0.1 fear per turn unless disarmed or reversed.

## **🌗 PACIFISM vs ESCALATION**

### **Moral Dilemma Dialog Tree**

**Cadre**: *Isaura*, a logistics officer whose brother was killed in a state raid.

**Trigger**: Player greenlights a sabotage operation that includes possible civilian casualties.

**Player Options**:

* **“This is war. The gloves come off.”** *(+escalation, +heat, −discipline)*
* \**“We can fight without blood. Build instead of burn.”* *(+pacifism, +sympathy, +discipline)*

**Isaura’s Branching Reactions**:

* **High Revolutionary Enthusiasm + Low Discipline**:  
     
  “Burn them all. I don’t care who’s caught in the flames.”  
   *Effect*: Isaura joins more violent cells, morale +1, fear index +0.2
* **High Discipline + Low Enthusiasm**:  
     
  “This isn’t strategy. It’s tantrum in uniform. We’re bleeding belief.”  
   *Effect*: May defect or trigger internal disciplinary inquiry
* **Balanced State**:  
     
  “I’ll follow orders. But I’ll remember who we became today.”

## **🔥 ACCELERATIONISM vs REFORM**

### **Moral Dilemma Dialog Tree**

**Cadre**: *Tariq*, a political strategist trained in urban planning

**Context**: The player chooses to destabilize a city’s energy grid, accelerating collapse, instead of finishing a school co-op project.

**Player Options**:

* **“Push collapse. Then we rebuild.”** *(+accelerationism, −public opinion, +radical drift)*
* \**“We build now. Reform from inside the storm.”* *(+stability, +community trust, −faction polarization)*

**Tariq’s Reactions**:

* **High Revolutionary Discipline**:  
     
  “You promised roads, not rubble. Collapse isn’t a strategy. It’s a cop-out.”  
   *Effect*: Internal doctrine shift possible. Faction polarization -0.1
* **High Revolutionary Enthusiasm + Accelerationist Drift**:  
     
  “A burned world blooms truer. Light the match.”  
   *Effect*: Trigger radical zealot trait. +symbolic volatility in event system
* **Mixed Response**:  
     
  “I’ll follow. But don’t ask me to defend this at the co-op.”  
   *Effect*: Cadre support retained but future sabotage resistance likely

## **☠️ NIHILISM vs OPTIMISM**

### **Moral Dilemma Dialog Tree**

**Cadre**: *Nilo*, a graffiti artist and propagandist  
 **Trigger**: Population turns against the faction after a media scandal

**Player Options**:

* **“Let it all rot. Hope is just delay.”** *(+nihilism, −public trust, +defector risk)*
* **“We show them why they believed in us once.”** *(+optimism, +resonance, −symbolic fatigue)*

**Nilo’s Reactions**:

* **Low Discipline, High Nihilism**:  
     
  “You know what a corpse believes in? Nothing. We’re halfway there.”  
   *Effect*: +0.2 symbolic fatigue. May defect or become symbolic martyr in event chain
* **High Enthusiasm, Optimist Trait**:  
     
  “They forgot because they were afraid. We remind them with light.”  
   *Effect*: public trust +0.05, faction morale +1
* **Conflicted**:  
     
  “Can I paint hope in smoke? Give me something to work with, boss.”  
   *Effect*: conditional optimism state → linked to next event

## **📈 Revolutionary Meters (Two Core Axis Stats)**

### **1. Revolutionary Enthusiasm (RE)**

* Tracks emotional investment and intensity
* Driven by: victories, martyrdom, symbolic resonance, powerful speeches, dream events
* High RE → risky but creative ops, zealotry, sacrifice
* Low RE → burnout, depression, sabotage risk

### **2. Revolutionary Discipline (RD)**

* Tracks operational cohesion, self-restraint, strategic foresight
* Driven by: successful logistics, clean mission execution, care for civilians
* High RD → structured, effective, coalition-capable
* Low RD → cell fragmentation, war crimes, power struggles

Both RE and RD should be **SYLVA-compatible emotion arrays**, tracked by:

* Cadre (personal stats)
* Faction (average + weight)
* District (as symbolic cloud)
* Player (perceived archetype from WREN integration)

## **1. “Torch of the Unheard”**

**Tone**: Revolutionary Enthusiasm Surge  
 **Use Case**: After a successful direct action / martyrdom  
 **Mechanics Triggered**:

* +Revolutionary Enthusiasm (RE) +0.3
* +Public Sympathy if media coverage was high
* +Symbolic Mythic Weight +0.2
* Unlocks *Volunteer Surge* Event (new recruits)

**Speech Text**:

“They called us noise. They buried our names in riot reports. But tonight, we *light the dark*. We burn for the children who breathe soot, the grandmothers who count coins. The fire they fear is the warmth we’ve owed ourselves for too long. Pick up the torch. This is how history remembers the unheard.”

**SYLVA Tags**: emergent\_martyr, ritual\_ignition, symbolic\_rebirth

## **🕊️ 2. “Build It Like We’ll Stay”**

**Tone**: Optimism + Discipline  
 **Use Case**: After choosing reform / school / mutual aid task chain  
 **Mechanics Triggered**:

* +Revolutionary Discipline (RD) +0.2
* -Symbolic Dissonance in faction
* +Public Trust +0.1 in relevant district
* Reduces fear index in populace

**Speech Text**:

“We are not vandals in borrowed time. We *build it like we’ll stay.* Schools. Kitchens. Clinics. These are not bait for the press. They’re the foundation of the world we’d rather grow than win. When they come with guns, we come with bread. When they leave with bruises, we stay with books. They raze. We raise.”

**SYLVA Tags**: reconstruction\_loop, dream\_manifest, bread\_before\_blood

## **⚖️ 3. “The Discipline to Become”**

**Tone**: Internal Faction Rigidification  
 **Use Case**: After a betrayal, defection, or doctrinal rift  
 **Mechanics Triggered**:

* +Revolutionary Discipline (RD) +0.4
* +Doctrinal Hardening (Faction locks into behavior preset)
* −Coalition Potential with ideologically opposed groups
* +Symbolic Fracture Risk for dissenting cadres

**Speech Text**:

“We don’t become what we dream of by dreaming. We become it by enduring. Every whisper of dissent weakens our reach. Every fracture feeds the enemy. From this day, we walk the line we drew. We *will not* be diluted. This isn’t repression. It’s reverence. The discipline to become is the cost of transformation.”

**SYLVA Tags**: ritual\_hardening, ideology\_forge, cohesion\_through\_loss

## **☠️ 4. “Let It Rot”**

**Tone**: Nihilism Surge / Collapse Acceleration  
 **Use Case**: Triggered after major media scandal, betrayal, or economic collapse  
 **Mechanics Triggered**:

* +Accelerationism +0.3
* −Revolutionary Discipline −0.2
* Symbolic Fatigue +0.1 (overexposure of ideology)
* Unlocks *Burnout Chain* for cadres

**Speech Text**:

“We tried clinics. We tried unions. We tried being nice. They laughed. They crushed. They filmed it. So now? Let it rot. The state, the markets, the apathy. We won’t fix it. We’ll make sure everyone knows it’s unfixable. Smile as it falls, comrade. That’s the sound of *honesty.*”

**SYLVA Tags**: collapse\_euphoria, dissociation\_shield, narrative\_void

## **🛤️ 5. “The Long Walk Home”**

**Tone**: Pacifist Correction / Retreat From Escalation  
 **Use Case**: After a civilian casualty event or overextension  
 **Mechanics Triggered**:

* −Revolutionary Enthusiasm −0.2
* +Revolutionary Discipline +0.3
* Dissonance Repair for cadres or public
* Soft reset of radicalization thresholds in district

**Speech Text**:

“We lost our way. We were fire in search of wood, not meaning. We said we’d never become them. And yet the mother of a child we didn’t mean to kill cries the same in every tongue. This walk back? It will be long. But we take it, together. One step. One tear. One rebuild.”

**SYLVA Tags**: atonement\_circuit, grief\_resistance, narrative\_deescalation

## **🧩 IMPLEMENTATION MECHANICS FOR CURSOR**

Each speech should function as:

* **Speech Object** with:  
  + trigger\_conditions: Event, district, or faction state
  + text: Full speech
  + speaker\_id: Faction leader or chosen cadre
  + faction\_effects: Dict of stat changes (RE, RD, trust, fear, etc.)
  + symbolic\_tags: SYLVA-compatible symbolic resonance triggers
  + visual\_aesthetic\_override: Optional (e.g. sepia filter, slo-mo effects)
  + cadre\_branch\_logic: If certain cadres react negatively/positively

## **🔗 FOLLOW-UP TASK CHAINS**

**Overview**:  
 Follow-up Task Chains are triggered procedurally or manually after key speeches, events, or faction decisions. They simulate ideological momentum, local reactions, and cascading consequences. Each chain is a nested sequence of Task objects with dynamic conditions.

### **🔧 Chain Object Structure**

json

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{

"chain\_id": "chain\_riot\_riotclinic",

"trigger\_type": "event", // could also be "speech", "faction\_threshold", "district\_state"

"trigger\_value": "event\_0456", // e.g. Port District Riot

"linked\_tasks": ["task\_aid\_001", "task\_aid\_002", "task\_speech\_003"],

"faction\_initiator": "mutual\_aid\_front",

"expires\_after\_turns": 6,

"symbolic\_trajectory": "grief\_to\_resistance"

}

### **📈 Example: “Riot to Recovery” Chain**

**Trigger**: Riot event with high civilian casualties  
 **Initiating Faction**: Community Mutual Aid Union

#### **Chain Flow:**

1. Task: Emergency Clinic Build  
   * Type: AID
   * Effects: +District Trust, +Public Sympathy
   * Risk: Low, unless under surveillance
3. Task: Interview Survivors for Zine  
   * Type: PROPAGANDA
   * Effects: +Symbolic Weight, minor public shift
   * SYLVA: grief\_archival, witness\_loop
5. Task: Public Vigil Event  
   * Type: ASSEMBLY
   * Effects: Unlocks “Shared Mourning” district trait, reduces polarization
   * Event Outcome: Chance for police overreaction or right-wing sabotage

## **⚠️ RANDOM ENCOUNTERS DURING MISSIONS**

**Overview**:  
 Each in-world Task has a random\_encounter\_pool based on its type, district risk level, public opinion, and faction visibility. These encounters create branching complications, recruitable NPCs, surveillance, or sudden symbolic dilemmas.

### **🧬 Encounter Object Structure**

json

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{

"encounter\_id": "enc\_surveillance\_pickup",

"task\_type\_match": "SURVEILLANCE",

"district\_risk\_threshold": 0.5,

"trigger\_chance": 0.15,

"description": "Cadre notices they are being followed by a discreet black sedan with no plates.",

"choices": [

{

"text": "Lead them into a trap",

"effect": "Triggers district sting event",

"requires\_trait": "Paranoia > 0.7"

},

{

"text": "Abort the mission quietly",

"effect": "Cancels task but no heat gained"

},

{

"text": "Ignore and continue",

"effect": "Roll: +30% chance of cadre being tagged by state database"

}

],

"symbolic\_tag": "mirror\_shadows"

}

### **🎲 Sample Random Encounters by Task Type**

#### **🕵️ Task: SURVEILLANCE**

* **Encounter**: *Marked by the Watcher*
  + A local child stares too long. Are they spying or just curious?
  + SYLVA: innocence\_watcher, surveillance\_doubt

#### **🧱 Task: BUILD SAFEHOUSE**

* **Encounter**: *Ex-Insurgent Offers Help*
  + A burned-out former revolutionary offers blueprints in exchange for a meal.
  + SYLVA: legacy\_haunt, hope\_in\_ruin

#### **🗞️ Task: PROPAGANDA**

* **Encounter**: *Zine Snatcher*
  + A religious neighbor grabs flyers and tears them up, quoting scripture.
  + Choose to: engage in debate, film confrontation, or flee.

#### **💥 Task: CRAFT EXPLOSIVE**

* **Encounter**: *Missing Wire Spool*
  + A critical component is gone. The supplier may be compromised.
  + Risk of explosion if continued. Unlocks “Supplier Vetting” protocol.

#### **🤝 Task: AID**

* **Encounter**: *Wounded Informant*
  + A state informant seeks help bleeding. Do you save them, interrogate, or finish them?
  + SYLVA: mercy\_loop, poisoned\_rescue

## **📜 CURSOR IMPLEMENTATION CONSIDERATIONS**

### **Task Object Enhancements**

* Add:  
  + random\_encounter\_pool: List of eligible encounter IDs
  + encounter\_trigger\_chance: Float 0-1
  + encounter\_resolution\_hook: Function that returns new tasks, alters heat, or spawns events

### **Follow-Up Chain Triggering**

* Extend task/event/speech objects with:  
  + follow\_up\_chain\_id: Points to prebuilt or procedurally generated chains
  + chain\_trigger\_conditions: Check faction morale, public fear, symbolic overload
  + chain\_consequence\_forecast: SYLVA/WREN narrative modeling (e.g. “grief > action” arc)

Excellent — here’s a full system draft for both **Random Encounter Generation** and **District Trait Mutation**, designed for Cursor integration and SYLVA/WREN emotional-symbolic scaffolding. This includes object structures, trigger logic, symbolic overlays, and development hooks for future procedural growth.

## **🎲 RANDOM ENCOUNTER GENERATION SYSTEM**

### **🔧 Encounter Pooling Architecture**

Each in-world Task, Mission, or Event has access to a contextual **Encounter Pool**:

* Pools are filtered by:  
  + task\_type (e.g., SURVEILLANCE, CRAFTING, PROPAGANDA)
  + district\_traits (e.g., “Highly Policed”, “Culturally Fractured”)
  + faction\_heat\_level
  + public\_mood (fear, hope, rage, apathy)
  + symbolic\_pressure (via SYLVA: high mythic weight events)

### **🧱 Encounter Generation Object**

json

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{

"encounter\_id": "enc\_hospital\_revenant",

"title": "Ghost in the Ward",

"description": "While treating patients, a cadre member sees someone who was supposedly disappeared two months ago. They vanish before being approached.",

"task\_match": ["AID", "INFILTRATE"],

"district\_tags\_required": ["State Trauma Center", "Memory Suppression"],

"trigger\_chance": 0.10,

"SYLVA\_tags": ["spectral\_memory", "hauntings\_of\_resistance"],

"outcomes": [

{

"choice": "Tell no one, continue work",

"effect": "Cadre gains +Paranoia, +Stress"

},

{

"choice": "Investigate quietly",

"effect": "Uncover Task: Unmarked Gravesite",

"risk": "Triggers minor surveillance tag"

},

{

"choice": "Use this as propaganda",

"effect": "Event: 'The Vanished Return' with +Mythic Weight"

}

]

}

### **⚙️ Encounter Runtime Flow**

1. **Pre-check**: On each Task execution, test encounter\_trigger\_chance
2. **Filter**: Match task\_type, district\_tags, and current faction\_symbolic\_pressure
3. **Inject**: Insert one Encounter node with narrative output and player-facing decision
4. **Log Result**: Track symbolic shift, trait changes, stress impact, and new tasks/events

### **🧪 Sample Encounters by Task**

#### **🔧 Task: CRAFTING**

* **“Smuggler’s Apprentice”**: A child offers to help build molotovs, quoting your faction’s slogans.  
  + SYLVA: contaminated\_innocence, intergenerational\_weight
  + Mechanics: Accepting the help may reduce time but raise public scrutiny.

#### **📢 Task: PROPAGANDA**

* **“False Flag Copycats”**: Flyers appear that mimic your design but direct people to a fake rally.  
  + SYLVA: narrative\_sabotage
  + Mechanics: Unlocks Task: “Trace Counter-Propaganda Cell”

#### **🕵️ Task: INFILTRATION**

* **“Eyes Behind the Mirror”**: While sneaking through a records office, a cadre finds a file labeled with their childhood nickname.  
  + SYLVA: identity\_perforation
  + Mechanics: +Stress, +Paranoia, possible leadership trauma arc

## **🌱 DISTRICT TRAIT MUTATION ENGINE**

Districts in *Years of Lead* are not static. They mutate based on trauma, joy, repression, organizing, or symbolic overload. Traits are dynamic flags that affect public opinion shifts, encounter probabilities, faction success odds, and SYLVA overlays.

### **🧱 District Object Sample (After Mutation)**

json

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{

"district\_id": "arts\_quarter",

"base\_traits": ["Culturally Vibrant", "Middle-Class"],

"mutated\_traits": ["Militarized Patrols", "Memetic Fracture"],

"symbolic\_state": {

"grief\_level": 0.7,

"hope\_level": 0.2,

"mythic\_weight": 0.85

},

"active\_encounter\_pool": ["enc\_artist\_disappearance", "enc\_vigil\_dissonance"]

}

### **🔁 Mutation Triggers**

1. **Trauma Saturation** (high grief\_level, >3 deaths, +heat)  
   * Examples: Gains “Haunted by Loss”, “Neighborhood Snitch Culture”
3. **Repression Spike**
   * Examples: “Militarized Zone”, “Silence-as-Survival”
5. **Cultural Emergence** (linked to successful Propaganda, Art, Rallies)  
   * Gains: “Songs of Defiance”, “Spoken Word Resistance”, “Dreamspace Activity”
7. **Symbolic Collapse** (contradictory myths + betrayal + failed uprising)  
   * Gains: “Fractured Identity”, “Moral Vacuum”, “Shadow Factions”
9. **Uplift / Resilience Arc**
   * Gains: “Underground Kindness Net”, “Vigil-District”, “Communal Momentum”

### **🧬 Trait Mutation Mechanics**

* On each Event or Task resolution, call:

ts

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mutateDistrictTraits(district\_id: string, inputs: {

trauma\_score: number,

hope\_score: number,

repression\_delta: number,

faction\_symbolic\_impact: number

})

* Internal logic will:  
  + Decay outdated traits
  + Layer new traits via weighted symbolic rulesets
  + Push or resolve dissonance thresholds
  + Trigger narrative-state flags (e.g. "District Awakened", "District at Breaking Point")

## **📌 CURSOR INTEGRATION POINTERS**

* Build each district with a mutable traitState and a reactive symbolicState.
* Use generateRandomEncounter(task, district) function hooked to every major Task execution.
* Log all trait mutations in a history timeline for timeline replay/debug mode.
* Use SYLVA overlay to provide ambient narrative flavor based on trait combinations.

## **🧍 CHARACTER PERMANENCY SYSTEM**

### **📚 NPC Object Schema**

json

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{

"npc\_id": "npc\_alba\_meneses",

"name": "Alba Meneses",

"role": "Journalist",

"location\_id": "university\_district",

"traits": ["Curious", "Lonely", "Prideful"],

"allegiance": "Neutral",

"trust\_score": 0.45,

"fear\_score": 0.1,

"attraction\_score": 0.3,

"symbolic\_resonance": ["conflicted\_ally", "potential\_icon"],

"known\_tasks": ["event\_riot\_photo", "task\_interview\_revolutionary"],

"vulnerability\_hooks": ["Wants Recognition", "Estranged from Family"],

"relationship\_state": {

"status": "Familiar",

"history": ["interviewed\_cadre\_rojas", "leaked\_photo\_denied"],

"recent\_emotion": "Intrigued",

"contact\_methods": ["in\_person", "dead\_drop"],

"flagged\_for\_storyline": true

}

}

## **🧠 INTERACTION MECHANICS**

Each interaction with an NPC is treated as a Social Operation Task, tied to faction goals or narrative arcs. They can be proactive or reactive.

### **🔧 Interaction Types & Mechanics**

| **Interaction** | **Mechanics** | **Requirements** | **Effects** |
| --- | --- | --- | --- |
| **Seduce** | Roll vs Charisma + Performance/Socialite, modified by attraction, grooming | Attraction > 0.2, recent bonding or vulnerability used | +Trust, open secrets, risk of betrayal if discovered |
| **Butter Up** | Praise, gifts, symbolic flattery (SYLVA-hooked) | Known trait or vulnerability | +Trust, may reduce Fear |
| **Break Down** | Gaslighting, shame, deprivation, mock betrayals | Charisma or Willpower vs target's Sanity | -Sanity, +Fear, may cause Collapse |
| **Gaslight** | False memories or event revisioning | History + Symbolic leverage | Changes memory log, can trigger False Ally state |
| **Bribe** | Spend resources | Greed trait or Financial Stress | +Trust, may shift allegiance or provide info |
| **Threaten** | Use Fear, Presence, or violence exposure | Presence or Combat Reputation | +Fear, risk of public backlash |
| **Kidnap** | Requires a covert team, trigger encounter chain | Stealth roll vs detection + prep tasks | Generates “Missing Person” Event, may collapse trust and induce trauma state |

### **📊 NPC STATS & STATES**

| **Stat** | **Range** | **Effects** |
| --- | --- | --- |
| **Trust** | 0.0–1.0 | Unlocks collaboration, secrets, favors |
| **Fear** | 0.0–1.0 | Unlocks coercion paths, but may block trust routes |
| **Attraction** | 0.0–1.0 | Used in seduction, flirt, or romantic manipulation |
| **Sanity** | 0.0–1.0 | Affects susceptibility to gaslighting, stress, trauma |
| **Loyalty** | Derived from interactions + ideological affinity | Triggers betrayal or conversion events |

### **🎭 RELATIONSHIP STATES**

* **Unfamiliar**: No known contact
* **Familiar**: Recognized, prior interaction
* **Trusted**: Positive engagement >0.6 trust
* **Afraid**: Fear >0.6, trust <0.3
* **Obligated**: Owes your faction a debt (e.g. rescue, saving child)
* **Broken**: High fear, low sanity, marked for trauma
* **Seduced**: Actively romantically engaged with a cadre
* **Double Agent**: Flagged to lie to other factions
* **Kidnapped**: Held in secret, used as leverage or indoctrinated

## **🔀 NPC DIALOGUE FRAMEWORK**

Interactions are powered by modular **SYLVA-tagged dialog trees** which evolve dynamically:

### **Example: Seduction Dialog Tree (Flirt Stage)**

json

CopyEdit

{

"npc\_state": "Familiar",

"attraction\_score": 0.4,

"choices": [

{

"player\_line": "You’ve got a spark they can’t snuff out. I see it.",

"SYLVA\_tag": "recognition\_desire",

"outcome": "+Attraction +Trust"

},

{

"player\_line": "You're smarter than them. Why stay leashed?",

"SYLVA\_tag": "subversion\_appeal",

"outcome": "+Attraction, unlock gaslighting path"

},

{

"player\_line": "[Silent Look]",

"SYLVA\_tag": "intimate\_resonance",

"outcome": "+Tension, test Fear vs Attraction"

}

]

}

## **🔒 LOCK/UNLOCK INTERACTIONS**

Interactions are **gated** by:

* Cadre skill tags (e.g. Seducer, Manipulator, Demagogue, Spy)
* Prior events and faction reputation
* District traits (e.g. “Sexually Conservative” may lock seduction)
* Relationship state (e.g. can’t gaslight someone Trusted & Sane)

## **🌀 SYMBOLIC STATE MODIFIERS (SYLVA INTEGRATION)**

NPCs may carry **emotional-symbolic wounds**:

* abandonment\_fear
* desperate\_to\_belong
* needs\_icon\_to\_follow
* martyr\_replacement
* unprocessed\_grief

These can be **invoked** during interactions to alter odds, shift arc paths, or unlock deeper emotional loops. Each also influences dream sequences, betrayal events, or faction myth-building.

## **🧪 FOLLOW-UP TASK CHAIN**

Each major NPC interaction unlocks new Task or Event entries:

* **Reveal Secret** → new faction info
* **Seduction** → espionage/sabotage
* **Gaslight** → inverted memory log
* **Kidnap** → rescue mission / propaganda escalation

### **🎭 Narrative Integration via SYLVA/WREN**

Crisis events are SYLVA-critical moments:

* Can lead to *dissonance spirals* in factions or populations
* Trauma-index spikes can generate **ritual fracture loops** or **dream logic memories**
* Factions may gain permanent traits like:  
  + *"Born From Fire"*: Gain recruitment bonuses in trauma-saturated zones
  + *"Broken Witnesses"*: All cadre start with trauma flaws unless intervened

WREN models emotional state arcs post-trauma, including:

* Post-crisis apathy or zeal
* Survivor guilt
* Internal rationalization or spiritual fragmentation
* Rebuilding identity rituals (name changes, tattoos, vows)

### **🧬 Event Data Integration**

Add these fields to Event objects for crisis modeling:

json

CopyEdit

"trauma\_effects": {

"district\_trauma\_increase": 0.35,

"national\_trauma\_spike": 0.15,

"symbolic\_memory\_created": true,

"collective\_emotion\_triggered": "despair\_to\_defiance"

},

"population\_response\_modifiers": {

"propaganda\_vulnerability": 0.25,

"radicalization\_bias\_shift": 0.2,

"peace\_trust\_delta": -0.3

}

et’s now **expand the Electoral Simulation Layer**, including detailed mechanics for district modeling, voter behavior, public opinion modulation, factional electoral interference, and dynamic referendum design.

## **🗳️ Electoral Simulation & District Modeling System**

The Electoral Simulation Layer tracks the **political and democratic response mechanisms** within the game world, allowing public sentiment, faction actions, trauma events, and symbolic influence to manifest through **votes, elections, and referenda**.

### **🗺️ Electoral District Architecture**

* The fictional island is divided into **electoral districts** (15–40 recommended depending on scale).
* Each district object has:  
  + population\_size
  + demographic\_profile: age, wealth, ethnicity, religion, ideology
  + governance\_level: local autonomy or direct state control
  + swayable\_voter\_percentage
  + voter\_turnout\_modifier: affected by trauma, fear, mobilization
  + active\_factions: top 3 influencing factions
  + recent\_events: local memory of symbolic or traumatic actions
  + heat\_level: police/military saturation
  + media\_penetration: influence of national vs local narratives
  + election\_results\_log: history of electoral outcomes
  + radicalization\_index: how likely non-mainstream parties gain traction

### **🧮 Voting Simulation Core**

Each election or referendum calculates district-by-district:

1. **Base Loyalty Table**: Initial ideological breakdown (e.g. conservative 40%, centrist 30%, progressive 20%, radical 10%)
2. **Modifiers Applied**:  
   * Faction actions (propaganda, aid work, repression backlash)
   * Government acts (benefits, crackdowns, neglect)
   * Traumatic or symbolic events (e.g. martyrdom, scandal)
   * Media tone (exposure + spin from coverage)
   * Personalization (e.g. strong charismatic local candidate)
   * Heat/trauma: High heat may suppress turnout or increase protest vote
   * SYLVA events: Can trigger widespread symbolic shifts (e.g. “Mother’s March” softens voters)
4. **Vote Allocation**:  
   * Turnout computed
   * Percentages translated into seats or ballot success/failure
   * Player faction may win symbolic or actual political gains

### **⚖️ Election Types**

1. **District Elections**:  
   * Every 12–24 turns (1–2 years)
   * Elects district-level council or representative
   * Factions can infiltrate by running cover candidates
   * Fraud, coercion, or reform possible
3. **National Elections**:  
   * Executive power or constitutional control
   * Outcomes affect State Posture, legitimacy, negotiation availability
5. **Referendums**:  
   * Triggered via event chain or political consensus
   * Examples:  
     + “Abolish Military Police Authority?”
     + “Reform Food System toward Mutual Aid?”
   * Binary yes/no votes
   * High symbolic resonance

### **🏛️ Political Party System**

* Player can form or infiltrate parties.
* Each party has:  
  + platform\_vector: weighted ideology values
  + faction\_backers: overt or covert support
  + public\_legitimacy\_score
  + campaign\_funding
  + candidate\_roster
  + corruption\_factor
* Alliances, betrayals, co-option possible.

### **🎭 Narrative & Symbolic Influence**

SYLVA hooks enable:

* **Mythic Candidates**: Heroes or martyrs inspiring unlikely victory
* **Disillusion Cascades**: If voters feel betrayed, mass abstention or radical pivot
* **Trauma Ballots**: After crisis, votes may swing out of grief, rage, or fear
* **"False Unity" Campaigns**: Factions masking identities behind independent fronts

### **🧩 Data Hooks for Integration**

Every district should output:

json

CopyEdit

{

"district\_id": "seaside\_west",

"support\_scores": {

"green\_coalition": 0.25,

"player\_faction": 0.18,

"gov\_centrists": 0.42,

"neo\_industrials": 0.05,

"unaffiliated": 0.1

},

"voter\_turnout": 0.62,

"winner\_party": "gov\_centrists",

"swing\_due\_to\_event": "Riot in Fisherman’s Alley",

"symbolic\_narrative\_modifier": "Shame\_vs\_Strength"

}

## **🕵️ Surveillance, Infiltration & Countersurveillance System**

This subsystem simulates the **constant pressure of visibility, betrayal, and state monitoring** on the player’s organization and on all factions across the island. It creates a game loop of **hidden information, suspicion, vetting, defection, false trust, and exposure**.

### **📡 Surveillance Architecture**

**State surveillance actions** are managed by a specialized AI subsystem representing internal intelligence forces. These operate according to a covert initiative tracker, with capabilities scaling based on:

* **State Heat Level** (How threatened the regime feels)
* **Public Opinion Support for Crackdown**
* **Funding / Repression Budget**
* **Faction Visibility**
* **Event History (e.g. terror attacks, propaganda leaks)**

#### **State Intelligence Tools:**

* Tracking Devices
* Audio Bugs
* Informant Recruitment
* Cadre Tail Assignments
* Location Wiretaps
* Phone / Commlink Taps
* Fake Social Media Groups
* Drone Surveillance
* Symbolic Profiling (SYLVA-style targeting by myth/archetype presence)

Each **cadre member** has a dynamic traceability score, composed of:

* Public presence (protests attended, media appearances)
* Known relationships
* Risky actions undertaken
* Countermeasures applied
* Symbolic profile visibility

If a threshold is crossed, they are **targeted for tracking, arrest, or discreditation**.

### **🧬 Infiltration Engine**

The **state intelligence AI** or rival factions may attempt **infiltration or compromise** through:

1. **Fake Recruits**:  
   * Appear during open recruitment drives
   * Generate realistic backstories
   * May be detected via suspicion metrics or interrogation tasks
3. **Turned Cadre**:  
   * Existing NPCs may flip after trauma, blackmail, or bribery
   * Tracked with loyalty, fear, and personal history traits
5. **Lawyers, Lovers, Artists**:  
   * Secondary NPC roles may harbor alternate agendas
7. **Deep Cover Moles**:  
   * Long-term operatives in core roles
   * Trigger narrative betrayal arcs or legal collapse events

### **🛡️ Countersurveillance & Security Protocols**

Players (and other factions) can assign cadres to **vet**, **sweep**, and **cleanse** their ranks and safehouses.

#### **Cadre Actions:**

* Run Background Check (verify bio, history, arrest record)
* Conduct Loyalty Interview
* Inspect Communications Logs
* Change Meeting Spots / Routines
* Burn Identity + Reassign
* Sacrifice a Cadre to Feed False Info

Each of these adds **Stress** but lowers vulnerability.

### **🎭 Symbolic Surveillance (SYLVA Integration)**

SYLVA adds a **non-literal risk layer**:

* Certain player slogans, posters, or rituals may trigger symbolic flags.
* Cadres with high symbolic resonance (e.g. seen as prophets, martyrs) gain public influence but draw **mythological profiling** by the state AI.
* This enables **metaphor-level targeting**: e.g. an artist-spiritual leader gets watched more closely than a bomb maker.

### **📉 Exposure Events & Fail States**

Major exposures can cause:

* Mass arrests
* Data leaks (rosters, plans, supply lines)
* Public scandal (symbolic betrayals or moral discreditation)
* Faction morale collapse
* Trigger government escalation

### **🛠️ Mechanics Summary**

Each **faction/cadre/safehouse** has:

* visibility\_score
* infiltration\_risk
* security\_rating
* active\_countermeasures
* symbolic\_signature

Each **intel action** costs the state **time, attention, and budget**. The state cannot surveil everything at once, creating **windows for covert action**.

## **🏛️ Government State Simulation & Policy Engine**

This system models the dynamic, reactive behavior of the ruling regime. It is not static—it shifts in response to world events, factional pressure, economic crisis, and internal legitimacy. Its logic is governed by a state AI that simulates the evolving posture of the government across **repression**, **reform**, **negotiation**, and **collapse** vectors.

### **⚖️ Government State Model**

Each game turn, the **Government AI** evaluates its status across these core attributes:

* legitimacy: Public support for its continued rule (0.0 to 1.0)
* stability: Internal cohesion of its security, political, and bureaucratic wings (0.0 to 1.0)
* repression\_level: Intensity of ongoing crackdowns, surveillance, or violence (0–100)
* economic\_health: State-managed inflation, production, and unemployment (0.0 to 1.0)
* international\_standing: How foreign powers perceive the regime
* governance\_mode: Enum: NEOLIBERAL | MILITARIZED | TRANSITIONAL | TECHNOCRATIC | POST-COUP
* paranoia\_index: Float representing fear of plots and infiltration
* negotiation\_posture: Enum: REFUSAL | WATCHFUL | BACKCHANNEL | ACTIVE | DESPERATE

Each policy decision, surveillance act, or public scandal shifts these metrics.

### **🏗️ Policy Simulation**

The government does not only react—it enacts.

Policies are modeled as modular objects. Each has:

* name: "Emergency Curfews", "National Reconciliation", "Surveillance Expansion"
* category: SECURITY | CIVIL | WELFARE | ECONOMIC | FOREIGN | LEGAL
* trigger\_conditions: e.g. fear index > 0.5, international sanctions, legitimacy < 0.3
* effects: e.g. +10 repression\_level, −0.2 legitimacy, unlock negotiation\_posture: BACKCHANNEL
* duration: Permanent, temporary, or cyclical
* event\_dependency: Can be triggered by or linked to symbolic or media flashpoints

Policy implementation may cause:

* Cadre morale drop or spike
* Faction radicalization
* Protest or celebration events
* International blowback

### **🔄 Government Behavior Loop**

Every few turns, the state AI assesses:

1. **Crisis Pressure**
   * Event queue analysis
   * Faction proximity to symbolic or territorial control
3. **Legitimacy Decay**
   * Long-term decay triggers if no reforms are passed
   * Scandal or repression amplifies drop
5. **Escalation or Concession**
   * If stability is high and legitimacy is low → **escalate**
   * If both are low → **concede or negotiate**
7. **Hardening vs. Fragmentation**
   * The ruling coalition may harden (authoritarianism) or split (civil war risk)

The AI then selects from scripted and emergent **policy or posture actions**.

### **🕊️ Negotiation & Concessions**

Certain public events or faction actions unlock **negotiation arcs**.

Trigger conditions:

* High repression + high faction public support
* International mediation
* Symbolic tipping points (e.g. hunger strike martyrdom, national holiday riots)

Negotiation States:

* Informal Channels: Quiet backdoor diplomacy
* Media Trials: Public-facing bargaining
* Deal Offers: Amnesty, electoral reform, ceasefires
* Collapse Talks: Regime survival trades (e.g. exile in exchange for peace)

Each negotiation has:

* Demands ledger
* Trust and betrayal risk
* Factional dissent impact
* Timeline and sabotage risks

SYLVA can augment this with:

* *Symbolic consequence modeling*
* *Emotional stakes forecasting*
* *Betrayal mythos arcs*

### **🧨 Regime Collapse Conditions**

A state collapses when:

* Stability < 0.1 **AND** legitimacy < 0.2
* Or: Mass defections in army/security
* Or: Foreign invasion or loss of capital city
* Or: Coordinated faction uprising + symbolic event

Collapse can spawn:

* Transitional government (opportunity)
* Civil war (fracture)
* Foreign occupation (new game phase)
* Ethnic/religious partition (region modeling)

Each leads to a **phase shift** in gameplay.

## **🏙️ District Modeling Layer**

To capture political asymmetry, resource tension, and factional opportunity, the fictional island nation will be divided into **9 unique districts**, each with distinct characteristics affecting recruitment, surveillance, unrest, support levels, and strategic leverage.

### **📍 District Framework**

Each district is defined by:

* id: Unique district code (e.g. district\_01)
* name: (e.g. "Portside Union", "Old Capital", "Free Market Zone")
* population: Integer count (visible and hidden populations)
* dominant\_class: POOR | WORKING | MIDDLE | ELITE | MIXED
* economic\_role: INDUSTRIAL | COMMERCIAL | AGRICULTURAL | ADMINISTRATIVE | CULTURAL
* urban\_density: RURAL | SEMI-URBAN | URBAN | MEGABLOCK
* policing\_presence: LOW to HIGH
* state\_loyalty: Float (0–1)
* faction\_influence: Map of {faction\_id: 0.0–1.0}
* electoral\_weight: Integer (votes or seats)
* trauma\_profile: Map of {event\_tags: count}, used by SYLVA for symbolic unrest modeling
* event\_history: Historical tags for uprisings, massacres, famines, etc.
* district\_modifiers: Special rules or passive effects

### **🧭 Example District Archetypes**

1. **Portside Union**
   * Industrial shipping, strong union base, potential for sabotage and blockades.
   * Police response delayed by maze-like layout.
3. **Old Capital**
   * Cultural and historical center, home to national archives and religious symbols.
   * Ideal for symbolic actions and mythic resonance.
5. **Agrarian Crescent**
   * Poor, rural zone with little policing but hard to access.
   * Ideal for hidden camps, low visibility operations.
7. **Free Market Zone**
   * Commercial haven full of corruption and black-market networks.
   * High risk, high reward for criminal fundraising.
9. **State Administrative Core**
   * Bureaucratic HQ, highest surveillance and facial recognition.
   * Crucial for infiltration or false-flag media stunts.
11. **Inner Slums**
    * Densely populated, historically oppressed.
    * Rapid protest potential but easy for police kettling.
13. **University Precinct**
    * Intellectual radicals and media-savvy activists.
    * Frequent ideological splits and propaganda experiments.
15. **Ex-Military Zone**
    * Decommissioned barracks, armed local gangs, useful for arms theft or cadre training.
    * Government wary of rearming it.
17. **Foreign Enclave**
    * Hotspot for diplomacy, international NGOs, and espionage.
    * Can broker foreign aid or leak atrocities to international media.

### **🔁 District Dynamics**

Districts evolve via:

* Population shifts (refugees, repression)
* Event accumulation (bombings, media coverage, aid projects)
* Symbolic tipping points (martyrdoms, betrayals, disasters)

Player actions, factional ops, government policy, and random crisis events dynamically shift each district’s status, which can affect:

* Task success rates
* Police/faction response times
* Faction legitimacy
* Public support / fear / despair indices

### **🗳️ Integration with Electoral Simulation**

Each district is also an **electoral unit**, contributing to referenda and national elections. Players must:

* Choose where to focus support-building
* Protect vote integrity (vs. state fraud or fascist intimidation)
* Time symbolic acts around election cycles

District-level modeling makes it possible to simulate:

* Gerrymandering
* Rural vs. urban radicalization curves
* Regional referenda
* Occupation vs. persuasion strategies

Here’s the expansion for the **Electoral Simulation Layer**, with full technical scaffolding to fit into the systemic structure you've built:

## **🗳️ Electoral Simulation Layer**

The electoral system in *Years of Lead* simulates the dynamic interaction between political legitimacy, popular will, insurgency, and reactionary power. Elections and referendums serve as both high-stakes inflection points and legitimacy-testing mechanisms for factions—including the player’s.

### **⚙️ Core Components**

Each election is procedurally generated and influenced by:

* **District-Level Voting Behavior**: Based on public sentiment, faction influence, voter intimidation, media coverage, and symbolic events.
* **Election Type**:  
  + *Parliamentary Elections* (district-based party seat allocation)
  + *Executive Elections* (direct vote for presidency/PM)
  + *Referenda* (binary questions—e.g., amnesty, foreign treaty, policing powers)

### **📊 District Vote Modeling**

Each of the 9 districts contains:

* registered\_voters: Total legal electorate
* turnout\_modifier: Float based on mood, repression, weather, threats
* faction\_preference\_map: {faction\_id: float}, updated by propaganda, scandals, events
* electoral\_volatility: Measures likelihood of swing
* suppression\_factor: Models voter intimidation or absenteeism

Districts return:

* turnout: Calculated turnout % after modifiers
* votes\_cast: Distribution of support
* reported\_results: May differ from actual if fraud occurs

### **🧠 Political Memory & Symbolic Weight**

SYLVA tracks:

* Voter *emotional anchoring* (hope, disillusionment, betrayal)
* *Mythic interpretation* of candidates (liberator, martyr, tyrant)
* *Narrative legitimacy arcs* (underdog victory, stolen election, populist redemption)

This affects:

* Future election engagement
* Protest/revolt likelihood post-result
* Cadre morale and factional cohesion

### **🎲 Electoral Outcome Logic**

Results affect:

* **Government Composition**: New ministers, policies, repression curves
* **Factions**: Momentum boosts, demoralization, splits
* **Public Opinion**: Hope or despair spikes
* **State Heat**: Loss of election by ruling party may trigger emergency laws, crackdowns

### **🛠️ Electoral Simulation Object (per cycle)**

json

CopyEdit

{

"id": "election\_2028\_legislative",

"type": "parliamentary",

"districts\_involved": ["district\_01", "district\_02", "..."],

"registered\_parties": ["gov\_nationalist", "dsf", "front\_socialiste", "psl", "independents"],

"voting\_results": {

"district\_01": {

"turnout": 0.66,

"votes": {

"psl": 13200,

"gov\_nationalist": 22800,

"front\_socialiste": 8800

},

"fraud\_detected": true,

"actual\_vs\_reported\_delta": {

"psl": -3500,

"gov\_nationalist": +2500

}

}

},

"parliament\_composition": {

"gov\_nationalist": 31,

"psl": 12,

"front\_socialiste": 6,

"independents": 1

},

"media\_narrative": "contentious",

"public\_response": {

"support\_shift": -0.08,

"polarization": 0.2,

"street\_mobilization\_likelihood": 0.34

},

"symbolic\_resonance": {

"SYLVA\_tags": ["betrayal\_narrative", "false\_hope\_arc"]

}

}

### **🔄 Referenda Mechanics**

Modeled similarly but with simpler inputs:

* question\_text: "Should police powers be expanded?"
* support\_by\_district: Calculated using media influence + faction campaigning
* vote\_outcome: YES | NO with % breakdown
* Referenda may:  
  + Modify laws
  + Trigger symbolic shifts (e.g. constitutional betrayal)
  + Fracture factions (e.g. anti-police-wing breaks off)

### **🎯 Player Influence Mechanisms**

Player can:

* Deploy propaganda or exposés before election
* Sabotage other factions’ campaigns
* Forge ballots or leak election fraud
* Use elections as narrative traps (e.g., trigger protest post-loss)

## **🏛️ Government State Simulation**

The Government State is a dynamic, reactive entity with its own procedural logic, symbolic memory, and mechanical posture. It evolves across the game based on public pressure, internal faction disputes, elections, and crisis events. The player interacts with it through agitation, negotiation, sabotage, and symbolic engagement.

### **🎮 Core Systems**

#### **1. Government Composition Engine**

* **Branches**: Executive, Parliament, State Security, Civil Bureaucracy
* **Composition States**:  
  + Technocratic
  + Populist (left/right)
  + Militarist
  + Oligarchic
  + Transitional/Collapsing
* **Shifts Based On**:  
  + Electoral results
  + Faction threats
  + Public unrest levels
  + Elite response to foreign and domestic pressure

#### **2. Governance Metrics**

* legitimacy: Public trust in regime (0-1 scale)
* control: Actual coercive enforcement capacity (0-100)
* bureaucratic\_integrity: Ability to deliver services or enforce laws
* corruption: Modifier to efficiency, affects infiltration ease
* propaganda\_efficiency: Boosts/penalizes official narratives
* reform\_pressure: From international or civil sectors

#### **3. Policy Response Tree**

Triggered by faction actions, public unrest, or crises:

* **Soft Containment**: media manipulation, grants, negotiations
* **Hard Containment**: surveillance, arrests, targeted disinfo
* **Escalation**: curfews, raids, broad censorship, military deployment
* **Fascistization Path**: enables blacksite use, mass trials, repression
* **Collapse State**: governance breaks down, faction power vacuums arise

### **🌀 Symbolic Governance (SYLVA Hooks)**

The state has *archetypal narrative states* that shift in tone and public perception:

* **The Father** (benevolent protector vs. abusive patriarch)
* **The Machine** (efficient bureaucracy vs. faceless terror)
* **The Wound** (suffering state seeking healing)
* **The Mask** (pretender democracy hiding repression)

These influence:

* Emotional resonance of laws
* Player morale and faction recruitment
* Narrative shaping of resistance or collaboration arcs

### **🔀 State Decision System**

At every turn, the government can:

1. **React** (e.g., respond to protest, suppress faction)
2. **Preempt** (e.g., deploy informants, pass laws)
3. **Reframe** (e.g., broadcast narrative, frame opposition)
4. **Negotiate** (e.g., approach player/factions for truce or compromise)

### **📉 Collapse Mechanics**

The government can enter:

* **Legitimacy Crisis**: loss of public support opens space for radicals
* **Control Crisis**: mass defections or paralysis in enforcement
* **Narrative Collapse**: SYLVA detects dissonance between myth and action
* **Institutional Collapse**: state becomes fractured across factions or warlords

### **🧩 Example State Object**

json

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{

"id": "gov\_01",

"regime\_type": "Populist Nationalist",

"legitimacy": 0.42,

"control": 78,

"propaganda\_efficiency": 0.67,

"bureaucratic\_integrity": 0.5,

"symbolic\_state": "The Mask",

"policy\_flags": ["curfews", "media restriction"],

"recent\_events": ["election", "mass protest", "international rebuke"],

"available\_actions": ["surveil\_faction", "issue\_grants", "increase\_repression"],

"reform\_pressure": 0.3,

"fascist\_threshold": 0.71,

"collapse\_threshold": 0.2

}

### **🧩 Technical Scaffolding (for Cursor)**

* GovernmentState class or module that hooks into:  
  + CrisisManager
  + FactionHeatMonitor
  + SymbolicMemory (SYLVA)
* evaluate\_government\_posture() runs every turn or triggered event
* apply\_policy\_change() updates world state and faction reactions
* Narrative logic outputs to WREN hooks for flavor text, dream logic, public myth propagation

## **🏛️ Government State Simulation**

The government in *Years of Lead* is not static or monolithic—it is a responsive, multi-layered actor with its own internal logic, factions, vulnerabilities, and adaptive capacity. The player’s revolutionary movement operates within and against this evolving state apparatus, which can shift toward fascism, collapse under internal contradictions, or liberalize under pressure.

### **🧩 Core Structures**

#### **🗂️ Government Class Structure**

* regime\_type: Populist | Technocratic | Militarist | Liberal | Transitional | Collapsing
* branches: Executive, Parliament, Civil Services, Security Apparatus
* power\_balance: Defines dominance between civilian vs. military actors
* leadership: NPC profiles (e.g., President, Prime Minister, Interior Minister)

#### **🔄 Governance Metrics**

* legitimacy: (0–1) Public trust in government
* control: (0–100) Coercive capacity to enforce laws and suppress unrest
* bureaucratic\_integrity: (0–1) Efficiency of civilian institutions
* corruption\_level: (0–1) Affects bribe viability, mission leakage, etc.
* repression\_level: (0–100) Determines frequency of raids, arrests
* propaganda\_efficiency: (0–1) State narrative control strength
* fascist\_incline: (0–1) Risk of authoritarian spiral
* collapse\_pressure: (0–1) Threshold toward state breakdown

### **🧠 Narrative State Model (SYLVA Hooks)**

The symbolic expression of the state affects how people *feel* about it. SYLVA parses public narrative arcs into archetypes that influence gameplay:

* **The Guardian**: High legitimacy + low repression — public sees state as protector.
* **The Machine**: High control + high bureaucracy — emotionally cold, efficient, but alienating.
* **The Mask**: Moderate legitimacy + high propaganda — disconnect between words and actions.
* **The Wound**: Low legitimacy + high collapse — trauma-drenched, memory of a state.

These symbolic masks affect:

* **Public opinion shifts**
* **Narrative outcomes of events**
* **Factions’ recruitment bonuses or penalties**
* **Mood of civil society and media tone**

### **🧩 Procedural Behavior Tree**

Each turn, the state takes an **Action Phase** governed by its internal priorities:

1. **Security Response Phase**
   * Monitor faction activity
   * Arrest high-heat cadre
   * Deploy informants
   * Escalate repression (curfews, surveillance drones, martial law)
3. **Narrative Control Phase**
   * Broadcast state propaganda
   * Censor dissenting media
   * Issue counter-narratives to events
5. **Policy Enactment Phase**
   * Introduce laws based on current fear level, polarization, and faction threat
   * Examples:  
     + "Anti-Subversion Act" = +surveillance power
     + "Unity Restoration Law" = faction ban attempt
7. **Public Gesture Phase**
   * Call for national unity
   * Pardon nonviolent actors (if liberalizing)
   * Propose negotiations
9. **Reaction to Major Events**
   * State *must* respond to events tagged symbolic\_shock, massacre, or international\_flashpoint

### **💥 Collapse Model**

The government can collapse via:

* **Narrative Failure**: People stop believing its story
* **Institutional Hollowing**: Bureaucracy stops functioning
* **Loss of Monopolized Violence**: Security forces split or disobey
* **Symbolic Rot**: Public trauma exceeds containment (SYLVA metric)

Leads to:

* Warlordism
* Emergency technocracy
* International intervention
* Factional open war

### **🔨 Cursor Scaffolding Tasks**

To hand off to Cursor or Windsurf:

* GovernmentState class
* evaluate\_government\_behavior() method (turn-cycle AI)
* apply\_policy\_response() function
* symbolic\_state\_parser() SYLVA input/output node
* collapse\_trigger\_check() that integrates with EventSystem, FactionHeatMonitor, and PublicOpinionTracker

## **🧩 SYLVA/WREN Integration API Flow**

### **📌 Overview**

SYLVA and WREN form the symbolic and emotional substrate beneath gameplay systems in *Years of Lead*. They do **not control mechanics**, but instead enrich narrative coherence, simulate emotional weight, and create emergent resonance arcs tied to gameplay outcomes.

### **🔄 API Integration Flow**

#### **1. SYLVA Evaluation Trigger Points**

SYLVA should be invoked in the following circumstances:

* When a **Task** is created, completed, or fails.
* When an **Event** is generated or resolved.
* When a **Faction** experiences a major shift (schism, martyrdom, betrayal).
* When a **Cadre** actor experiences trauma, loyalty shift, burnout, or personal arc development.
* When a **Government policy** triggers significant repression or concession.

#### **2. SYLVA API Call Structure**

python

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SYLVA\_input = {

"entity\_type": "task" | "event" | "cadre" | "faction",

"symbolic\_context": {

"keywords": ["martyrdom", "betrayal", "subversion", "hope", ...],

"emotional\_arcs": ["dissonance", "solidarity", "abandonment"],

"actor\_role": "perpetrator" | "witness" | "victim" | "agent",

"public\_exposure": 0.0 to 1.0,

"media\_tone": "positive" | "negative" | "ambiguous",

"faction\_alignment": "player" | "opponent" | "neutral",

"historic\_weight": float (0.0 to 1.0)

},

"game\_state\_context": {

"heat": int,

"morale": float,

"polarization": float,

"active\_districts": [...],

"recent\_events": [event\_ids]

}

}

Returns:

python

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SYLVA\_output = {

"symbolic\_impact\_score": float (0.0 to 1.0),

"narrative\_resonance\_type": "ritual\_reckoning" | "echo\_of\_trauma" | "cultural\_fork" | ...,

"emotional\_feedback": {

"faction\_shift": {"loyalty": +0.1, "paranoia": +0.3},

"cadre\_state": {"burnout": True, "ideological\_waver": False}

},

"triggered\_callbacks": ["WREN\_manifesto\_update", "CadreJournalingPrompt"],

"recommended\_flavor\_text": "Despite the public silence, whispers called him a broken phoenix. Something had changed."

}

### **🧠 WREN Manifesto & Reflection Hooks**

WREN governs:

* **Symbolic Manifesto Updates**: When your movement's ideology evolves in response to trauma or success.
* **Cadre Journaling**: Dream-like reflections after missions; used for debriefing and decompressing.
* **Public Impressions**: Generates abstract slogans, graffitis, murals, and oral myths.

Use this sample WREN hook:

python

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WREN\_input = {

"cadre\_id": "eli\_rojas",

"recent\_task": "infiltration\_failure",

"SYLVA\_resonance\_type": "shattered\_purpose",

"faction\_context": {

"doctrine": "mutualist",

"recent\_splits": True,

"morale": 0.45

}

}

Returns:

python

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WREN\_output = {

"manifesto\_update": "We are the promise and the pause. No more bright lies from shadowed hands.",

"journal\_entry": "He still hears the boots on wet concrete. No words came. He watched the door shut. Again.",

"symbolic\_tags": ["doubt", "echo", "reorientation"],

"suggested\_flavor\_text": "The night after the operation, he didn’t speak. Just stared at the crack in the ceiling."

}

### **🧠 SYLVA + WREN in Gameplay Context**

| **Game Layer** | **SYLVA Role** | **WREN Role** |
| --- | --- | --- |
| Task Resolution | Modulates symbolic heat, loyalty, morale shifts | Creates introspective flavor, burnout logs |
| Events | Measures public resonance, mythic weight, grief/fear impact | Symbolic event summary or rumor engine |
| Faction Arcs | Interprets betrayal, martyrdom, doctrine shifts | Generates internal manifestos, zines, rumors |
| Government Repression | Interprets trauma, dissociation, or galvanization | Creates reflective counter-messaging, slogans |
| Player Journaling | Offers dream-logic summaries of cause/effect | Generates metaphorical journal entries |

## **🧱 Part 6: Modular UI/UX Components**

While implementation may vary by engine or front-end tech (e.g. React, Unity, Godot), here are **suggested modular UI elements** and how they interact with system state.

### **🪧 Primary Game Layers**

| **Component** | **Functionality** |
| --- | --- |
| **District Map View** | Interactive zones with heat indicators (repression, support, unrest) |
| **Faction Panel** | Shows doctrines, behavior trees, mood, and symbolic footprint |
| **Cadre Roster** | Portrait-based interface showing loyalty, stress, traits, current tasks |
| **Task Board** | Issue new orders via drag/drop or decision trees |
| **Event Feed** | Dynamic news ticker for media reactions, trauma events, and world state |
| **SYLVA Window** | Symbolic introspection, dreams, inner monologue, journaling prompts |
| **Elections Interface** | Live polling, district-level data, gerrymandering overlays |
| **Surveillance Monitor** | Heat, detection logs, and exposed operations visualized as a timeline or spidergraph |
| **Crisis Alert Dashboard** | Pop-up flags for trauma bursts, faction fracture, symbolic rupture, player burnout |

## **🧱 Part 7: Core Database Schema (Modular, NoSQL / Relational Hybrid)**

This schema can be adapted to SQL (PostgreSQL) or a NoSQL structure (MongoDB). Key tables/collections:

### **🔗 factions**

json

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{

"id": "faction\_001",

"name": "Free Education Front",

"doctrine": "dual\_power",

"heat": 55,

"symbolic\_index": {

"mythic": 0.6,

"dissonance": 0.1,

"iconic\_nodes": ["library\_occupation", "teacher\_martyrdom"]

},

"public\_support": 0.34,

"cadre\_ids": [...],

"relationships": {

"player": "ally",

"faction\_002": "rival"

}

}

### **🔗 cadres**

json

CopyEdit

{

"id": "cadre\_roza",

"name": "Roza Matthisen",

"skills": ["speechcraft", "first\_aid", "organizing"],

"loyalty": 0.75,

"stress": 0.22,

"current\_task": "task\_105",

"personality": { "openness": 0.8, "loyalty\_type": "symbolic", "burnout": 0.1 },

"trauma\_flags": ["betrayed\_cell", "torture\_exposure"]

}

### **🔗 districts**

json

CopyEdit

{

"id": "university\_district",

"support\_left": 0.55,

"support\_right": 0.15,

"repression": 0.3,

"unrest": 0.6,

"gerrymandered": true,

"population\_traits": {

"students": 0.4,

"workers": 0.3,

"unemployed": 0.1

}

}

## **🧱 Part 8: Procedural Manifesto & Narrative Templates**

These can be powered by **WREN** or basic grammar-template systems. Suggested modules:

### **✍ Manifesto Generator Inputs**

* Ideological alignment
* Recent trauma or oppression
* Symbolic event triggers
* Desired tone (e.g. defiant, mournful, utopian)

**Example Output**:

“We remember the blood on the library steps. We will no longer beg for freedom from a government that fears books more than bullets. Let it be known — education is not a privilege. It is our battleground.”

### **✍ Dream/Narrative Generator**

Used for SYLVA integration in trauma loops, cadre reflections, or symbolic rupture moments.

**Sample Archetypes**:

* "Child in fire" → unresolved guilt loop
* "Empty station" → abandonment, failure of ideology
* "Shadow of the city" → fear of betrayal or loss of identity

These can be conditionally seeded from symbolic\_state and cadre profile traits.

## **🧱 Part 9: Threat Modeling & QA Simulation Framework**

To harden the simulation, Cursor engineers should build or stub:

### **🔐 Adversarial Test Harness**

* **Fuzzing event input** for malformed symbolic states
* **Heat curve stress tests** (massive cascading repression + events)
* **Edge task chains**: recursion between low-skill cadres and high-risk outcomes
* **Betrayal spam**: mass betrayal simulation to check state corruption

### **🧪 Scenario Playtest Modes**

* Debug toggles for full faction AI visibility
* Adjustable symbolic visibility toggles (how much the player can "feel")
* Turn-by-turn rollback buffer to allow loop regression testing
* Flag invalid symbolic states (e.g. cadre dreams about events they never saw)

## **🧠 Part 10: SYLVA-Specific Embedding & Symbolic State Integration**

SYLVA operates on symbolic resonance rather than raw token classification. To integrate it:

### **🔄 Symbolic Memory Embeddings**

Maintain a lightweight vector store of:

* Faction symbolic identities (liberator, martyr, false flag)
* Cadre emotional arcs (redemption\_loop, trauma\_loop, shatter\_point)
* District mythic presence (cradle\_of\_uprising, ashes\_of\_order)

Use cosine similarity on prompts like:

*“What does this event mean in the mythic memory of the port workers?”*

Return:

json

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{

"symbolic\_weight": 0.83,

"resonance": "solidarity\_born\_in\_suffering",

"emotional\_trigger": "shared\_loss"

}

### **🔄 Journal Integration**

Let SYLVA offer dream-logic narration like:

“You find yourself speaking with a statue of your dead friend. It asks: ‘Was it worth it?’”

Store all SYLVA echoes in:

* symbolic\_log[]: Narrative dream-fragments
* reflective\_traits[]: Emotional growth toggles
* narrative\_flags[]: Boolean tokens like resolved\_guilt, internal\_burnout, ruptured\_belief

Use them to modulate:

* Cadre loyalty/stress/betrayal risk
* Faction doctrine shift rates
* Negotiation tone between government and insurgents

## **🔁 Part 11: Turn Cycle Manager Logic**

Years of Lead operates on a **turn-based time system** with these layers:

### **Base Cycle**

Each turn = 1 week.

* All tasks tick once.
* Cadre stats update.
* Government surveillance ticks.
* District modifiers update.

### **Tick Order**

1. **Resolve player task queue**
2. **Run AI faction behaviors**
3. **Process random/world events**
4. **SYLVA reflections phase**
5. **Government simulation pass**
6. **Output update feeds**

### **Optional Layers**

* **Microturns** (e.g. daily updates) for advanced surveillance/policing simulation
* **Seasonal cycles** — morale boost during holidays, weather impacts on protests
* **Turn tempo modulation** — Slow down for major trauma events (player must “sit with it”)

## **📊 Part 12: CSV/JSON Export & Import Protocols**

To enable extensibility, open-source contributions, or third-party scenario editors:

### **Suggested Export Objects:**

* cadres.json
* districts.json
* tasks.csv
* faction\_behavior\_logs.csv
* symbolic\_memory\_store.json

### **Use Cases:**

* Researchers analyzing radicalization arcs
* Modders injecting new historical conflicts
* Therapists applying the engine to roleplay-based trauma modeling

SYLVA and WREN modules can output symbolic logs separately to:

* sylva\_reflection\_log.json
* emotional\_trajectories.csv

Each record should be time-stamped, trait-linked, and narrative-anchored.

## **🧩 Part 13: Engine-Specific Plugin Suggestions**

If using **Godot** or **Unity**, consider:

### **🎮 Godot**

* **State machine framework**: Use Godot’s StateMachine node extension for faction AI
* **GDScript Embedding**: Wrap SYLVA calls with async coroutine-style hooks
* **UI Nodes**: Leverage RichTextLabel with BBCode for narrative output. Animate symbolic dreams as layered CanvasLayers with filters for surrealism.

### **🎮 Unity**

* **ScriptableObjects** for faction/cadre/task storage
* **Cinemachine + Timeline** to render symbolic memory scenes
* **Odin Inspector** for structured data debugging
* **Unity Addressables**: Dynamically load faction assets or district overlays
* **Async Narrative Coroutine System**: Let WREN/SYLVA prompts appear as “cutscenes” or interactive monologue segments

## **🧠 Bonus: SYLVA/WREN Developer Personas**

You may define developer/testing personas to simulate various emotional states and stress reactions during QA.

* **Persona: Burned Idealist**
  + Crumbles if too many betrayals accumulate
  + Notes symbolic arc inconsistencies
* **Persona: Sadistic State**
  + Tests government behavior in full repression loops
  + Flags unrealistic player victory paths
* **Persona: Naïve Activist**
  + Tries diplomacy at every opportunity
  + Logs emotional arc breakpoints for narrative collapse

## **📚 WREN Symbolic Prompt Library (Initial Sample Set)**

These prompts are used for:

* Generating manifestos
* Modeling trauma
* Triggering cadre breakdowns
* Logging internal faction rifts

### **1. Manifesto Generator Prompt**

json

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{

"input\_context": {

"faction\_doctrine": "horizontalist mutual aid",

"recent\_events": ["leader jailed", "community center burned"],

"public\_opinion\_score": 0.42

},

"prompt": "Write a manifesto excerpt for the public that reframes recent losses as fuel for solidarity. Invoke the dream of decentralized belonging."

}

🡆 **Expected Output (Text + Tags):**

“We are not broken. The flames only revealed the roots. Our dream was never held in buildings—it lives in bread passed hand to hand.”

* tags: ["resilience", "roots", "burning\_hope", "decentralized\_myth"]

### **2. Cadre Breakdown Prompt**

json

CopyEdit

{

"cadre\_profile": {

"name": "Imani",

"stress": 0.9,

"betrayal\_event": true,

"dream\_log": ["the sea won’t take me back"]

},

"prompt": "Write Imani's internal monologue as she considers leaving the movement."

}

🡆 **Expected Output:**

“I walked too far into this fire. I thought it was light. Now every time I close my eyes, I see the boy’s hands shaking.”

* emotion\_flags: ["burnout", "haunted", "loyalty\_tested"]

## **🧪 Symbolic Test Scenarios & Flag Expectations**

To validate integration, include a symbolic test pass for each major WREN/SYLVA function:

### **Scenario 1: Community Trauma Cascade**

**Trigger**: Riot causes civilian deaths.  
 **Expected SYLVA output**:

* public\_emotional\_state.port\_district: ["grief", "betrayal", "anger"]
* symbolic\_weight: 0.78
* recommended\_event\_tags: ["flashpoint", "potential\_martyr", "ritual\_reckoning"]
* SYLVA\_resonance\_type: "grief\_resistance"

### **Scenario 2: Betrayal by Faction Split**

**Trigger**: Faction A leader found collaborating with State.  
 **Expected Outputs**:

* symbolic rupture flag: true
* cadre\_loyalty.drop: >20%
* auto-generated dream entry:  
     
  “He wore our colors, but his voice spoke in shadows.”
* faction doctrine shift: 3% toward paranoia-militarism

### **Scenario 3: Heroic Uplift Moment**

**Trigger**: Community hospital protected from police raid.  
 **Expected Outputs**:

* district\_hope\_score: +15%
* new public mythic tag: "healing\_line\_held"
* faction symbolic memory:  
     
  “We built a wall of arms, and the children slept behind it.”

## **🧩 SYLVA Emotional State Manager (Plugin Blueprint)**

This is a subsystem that tracks symbolic and emotional arcs over time.

### **🎛 Core Schema:**

ts

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interface EmotionalState {

stress: number; // 0.0 to 1.0

loyalty: number; // 0.0 to 1.0

symbolic\_fatigue: number; // how ‘burned out’ their mythic self is

dream\_log: string[]; // surreal fragments from WREN

dissonance\_flags: string[]; // betrayal, lost cause, guilt loops

resolved\_arcs: string[]; // e.g. “absolved guilt”, “rebuilt trust”

}

### **🎯 Update Functions:**

ts

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function applyEventImpact(state: EmotionalState, event: GameEvent): EmotionalState {

if (event.symbolic\_value.dissonance\_trigger) {

state.dissonance\_flags.push("ruptured\_narrative");

}

state.stress += event.affected\_public\_opinion.fear\_index \* 0.2;

state.loyalty -= event.affected\_public\_opinion.polarization\_delta \* 0.1;

state.symbolic\_fatigue += event.symbolic\_value.mythic\_weight \* 0.15;

return state;

}

## **🔄 Suggested Plugin Locations**

**Unity**:

* EmotionalStateManager.cs → Singleton Service
* Attach to Cadre ScriptableObject → Trigger updates on task results and WREN feedback

**Godot**:

* EmotionalState.gd → AutoLoad singleton or child of CadreManager.gd
* WREN output streamed into dream\_log[]
* Use a BBCodeLabel to show recent symbolic memory fragments

## **🌿 Sample Dialogue Tree: Burnout Spiral**

**Cadre**: Imani  
 **Context**: Imani just returned from a failed sabotage mission where her comrade was killed. Her emotional state includes high stress (0.88), low loyalty (0.35), and symbolic fatigue ("lost thread").

**Player (if approaching gently):**

“You’ve carried too much alone. Do you want to rest? I can take the next risk.”

**Imani (if loyalty > 0.4):**

“I want to believe that. I want to believe someone else still knows the way.”

*Emotional tag*: [hope flicker]

*Dream log entry*: *"A second torch in the dark."*

**Imani (if loyalty < 0.4):**

“You say that, but the dead don’t hear promises.”

*Symbolic rupture trigger*: guilt loop

*Flag*: cadre at risk of desertion

**Player (if pressing her to continue):**

“This isn’t the time to fall apart. We need you sharp.”

**Imani (if symbolic fatigue > 0.7):**

“You don’t need me. You need a myth. I stopped being one weeks ago.”

*Dissonance flag set*: "depersonalization"

*Dream log*: "They wear my name but not my skin."

## **🔥 Sample Dialogue Tree: Betrayal Fallout**

**Cadre**: Yusuf  
 **Context**: A faction split has occurred. Yusuf remains loyal, but his brother defected. His stress is moderate, but betrayal trauma is fresh. Symbolic fatigue is low.

**Player (soft approach):**

“Your brother made a choice. That doesn’t have to define you.”

**Yusuf (loyalty > 0.6):**

“No. But I can’t pretend I didn’t walk beside him when he built the road.”

*Emotional tag*: [fractured bloodline]

*SYLVA resonance type*: shame dissociation

**Player (aggressive):**

“He turned his back on us. If you hesitate, maybe you should follow.”

**Yusuf (high discipline, moderate loyalty):**

“Then I’ll stay to prove what I believe. And you’ll see it in every scar I earn.”

*Loyalty +0.1*

*Symbolic imprint created*: "scar\_witness\_oath"

**Yusuf (low loyalty < 0.4):**

“If we start testing each other like enemies, we’ll forget who the real ones are.”

*Betrayal threshold rolls next turn*

## **🪞 Sample Dialogue Tree: Dream-Like SYLVA Encounter**

**Cadre**: Alma  
 **Context**: After a bombing, Alma suffered trauma and began experiencing narrative dissociation. She speaks in dreamlike metaphors. The player can choose to follow her logic or confront it.

**Player (align with metaphor):**

“The garden’s gone quiet. Are the roots still alive?”

**Alma (if trust > 0.5):**

“The roots sleep under the ash. But one root remembers fire and will not bloom.”

*Symbolic arc activated*: memory of fire

*Cadre gains +1 in loyalty if next mission succeeds*

**Player (direct challenge):**

“I need you to speak plainly. We don’t have time for riddles.”

**Alma:**

“Then I am not the one you need. The plain ones are already dead.”

*Dissonance tag*: [alienation]

*Loyalty -0.1, stress +0.2*

## **🛠️ Developer Integration Notes**

* **Emotion thresholds** drive which branch is activated.
* Each branch updates the **SYLVA** dream\_log[], **loyalty**, **stress**, or symbolic tags.
* Dialogue trees can chain into **WREN-generated poetic monologues**, **flashback scenes**, or **faction reaction scripts**.
* Design system to cache last 3 symbolic memory tags for later dream reference (e.g., betrayal arcs, sacrifice scars, etc).

### **1. “Did We Become the Thing We Fought?”**

**Cadre**: Marwa  
 **Context**: The player approved a bombing that killed civilians by accident. Marwa, a disciplined propagandist, confronts the fallout.

**Player Options**:

* **“War has casualties. We didn’t start this.”**
* **“We lost the thread. This can’t happen again.”**

**Marwa Response (loyalty > 0.6, symbolic fatigue < 0.5)**:

“If we didn’t start it, why do I dream of their screams? I wanted a revolution, not a funeral.”

*Effect*: +0.1 dissonance | adds night\_screams to dream\_log.

**Marwa Response (loyalty < 0.4)**:

“There are lines you cross that erase who you were. And I don’t know who we are anymore.”

*Effect*: Flag loyalty fracture pending | symbol: mirror\_cracked.

### **2. “The Informant’s Kid”**

**Cadre**: Simo  
 **Context**: An informant's teenage child was caught in a cadre's reprisal. The player ordered the mission.

**Player Options**:

* **“He knew the risks when he talked.”**
* **“We shouldn't have touched the family.”**

**Simo (high loyalty, moderate fear)**:

“You taught me to listen to conscience. That’s what made us different. Now it sounds like static.”

*Symbolic Tag*: conscience\_jammed

*Effect*: May suppress fear in next mission, but raise symbolic fatigue over time.

**Simo (low loyalty, high fear)**:

“Do we become beasts to slay beasts? Or have we just become beasts who quote poetry?”

*Trigger*: identity\_shatter | +0.2 fear | faction morale -1 if leaked.

### **3. “The Traitor’s Plea”**

**Cadre**: Arnaud  
 **Context**: A captured ex-cadre begs for mercy. Player can choose to execute, imprison, or release.

**Player Options**:

* **“He’s a virus. He dies.”**
* **“He was one of us. He gets a trial.”**

**Arnaud (justice-valuing, trauma-exposed)**:

“If we silence him like they do… how are we any different than the regime?”

*Symbolic Flag*: echo\_of\_them

*Possible Response Tree*: Arnaud may refuse future orders without moral context.

**Arnaud (bloodthirsty trait unlocked)**:

“Mercy is what they use to survive us. Not today.”

*Effect*: Faction fear rating increases in population. *Morale split event* may trigger.

### **4. “The Stolen Vaccine Crate”**

**Cadre**: Kaori  
 **Context**: A shipment of vaccines was stolen and redirected to cadre clinics instead of a neutral refugee camp.

**Player Options**:

* **“Our people first.”**
* **“We send half. It’s not ours to hoard.”**

**Kaori (if symbolic dissonance high)**:

“They’ll remember who left them to die. And that memory will grow sharp teeth.”

*Symbolic impact*: future vengeance tag assigned.

*SYLVA resonance*: moral\_abandonment

**Kaori (if loyalty low)**:

“Revolution isn’t triage. It’s a vow. Break that, and we become triage nurses for a dying dream.”

*Flag*: principled\_breaker | May leave faction or radicalize.

### **5. “Cameras in the Commune”**

**Cadre**: Lucien  
 **Context**: The player proposes surveillance to detect infiltrators, including hidden cams in allied communal spaces.

**Player Options**:

* **“Security means seeing everything.”**
* **“Trust matters more than intel.”**

**Lucien (if privacy trait high)**:

“We built this to feel safe. Now we watch each other like the old days. Maybe the mirror eats us after all.”

*Trigger*: surveillance\_dread

*Symbolic arc shift*: from trust\_in\_earth → roots\_cut\_by\_wires

**Lucien (if fear > 0.75)**:

“If it keeps the wolves out, fine. But don’t expect me to smile while I rot inside.”

*Effect*: +0.1 fear per turn unless disarmed or reversed.

## **🌗 PACIFISM vs ESCALATION**

### **Moral Dilemma Dialog Tree**

**Cadre**: *Isaura*, a logistics officer whose brother was killed in a state raid.

**Trigger**: Player greenlights a sabotage operation that includes possible civilian casualties.

**Player Options**:

* **“This is war. The gloves come off.”** *(+escalation, +heat, −discipline)*
* \**“We can fight without blood. Build instead of burn.”* *(+pacifism, +sympathy, +discipline)*

**Isaura’s Branching Reactions**:

* **High Revolutionary Enthusiasm + Low Discipline**:  
     
  “Burn them all. I don’t care who’s caught in the flames.”  
   *Effect*: Isaura joins more violent cells, morale +1, fear index +0.2
* **High Discipline + Low Enthusiasm**:  
     
  “This isn’t strategy. It’s tantrum in uniform. We’re bleeding belief.”  
   *Effect*: May defect or trigger internal disciplinary inquiry
* **Balanced State**:  
     
  “I’ll follow orders. But I’ll remember who we became today.”

## **🔥 ACCELERATIONISM vs REFORM**

### **Moral Dilemma Dialog Tree**

**Cadre**: *Tariq*, a political strategist trained in urban planning

**Context**: The player chooses to destabilize a city’s energy grid, accelerating collapse, instead of finishing a school co-op project.

**Player Options**:

* **“Push collapse. Then we rebuild.”** *(+accelerationism, −public opinion, +radical drift)*
* \**“We build now. Reform from inside the storm.”* *(+stability, +community trust, −faction polarization)*

**Tariq’s Reactions**:

* **High Revolutionary Discipline**:  
     
  “You promised roads, not rubble. Collapse isn’t a strategy. It’s a cop-out.”  
   *Effect*: Internal doctrine shift possible. Faction polarization -0.1
* **High Revolutionary Enthusiasm + Accelerationist Drift**:  
     
  “A burned world blooms truer. Light the match.”  
   *Effect*: Trigger radical zealot trait. +symbolic volatility in event system
* **Mixed Response**:  
     
  “I’ll follow. But don’t ask me to defend this at the co-op.”  
   *Effect*: Cadre support retained but future sabotage resistance likely

## **☠️ NIHILISM vs OPTIMISM**

### **Moral Dilemma Dialog Tree**

**Cadre**: *Nilo*, a graffiti artist and propagandist  
 **Trigger**: Population turns against the faction after a media scandal

**Player Options**:

* **“Let it all rot. Hope is just delay.”** *(+nihilism, −public trust, +defector risk)*
* **“We show them why they believed in us once.”** *(+optimism, +resonance, −symbolic fatigue)*

**Nilo’s Reactions**:

* **Low Discipline, High Nihilism**:  
     
  “You know what a corpse believes in? Nothing. We’re halfway there.”  
   *Effect*: +0.2 symbolic fatigue. May defect or become symbolic martyr in event chain
* **High Enthusiasm, Optimist Trait**:  
     
  “They forgot because they were afraid. We remind them with light.”  
   *Effect*: public trust +0.05, faction morale +1
* **Conflicted**:  
     
  “Can I paint hope in smoke? Give me something to work with, boss.”  
   *Effect*: conditional optimism state → linked to next event

## **📈 Revolutionary Meters (Two Core Axis Stats)**

### **1. Revolutionary Enthusiasm (RE)**

* Tracks emotional investment and intensity
* Driven by: victories, martyrdom, symbolic resonance, powerful speeches, dream events
* High RE → risky but creative ops, zealotry, sacrifice
* Low RE → burnout, depression, sabotage risk

### **2. Revolutionary Discipline (RD)**

* Tracks operational cohesion, self-restraint, strategic foresight
* Driven by: successful logistics, clean mission execution, care for civilians
* High RD → structured, effective, coalition-capable
* Low RD → cell fragmentation, war crimes, power struggles

Both RE and RD should be **SYLVA-compatible emotion arrays**, tracked by:

* Cadre (personal stats)
* Faction (average + weight)
* District (as symbolic cloud)
* Player (perceived archetype from WREN integration)

## **1. “Torch of the Unheard”**

**Tone**: Revolutionary Enthusiasm Surge  
 **Use Case**: After a successful direct action / martyrdom  
 **Mechanics Triggered**:

* +Revolutionary Enthusiasm (RE) +0.3
* +Public Sympathy if media coverage was high
* +Symbolic Mythic Weight +0.2
* Unlocks *Volunteer Surge* Event (new recruits)

**Speech Text**:

“They called us noise. They buried our names in riot reports. But tonight, we *light the dark*. We burn for the children who breathe soot, the grandmothers who count coins. The fire they fear is the warmth we’ve owed ourselves for too long. Pick up the torch. This is how history remembers the unheard.”

**SYLVA Tags**: emergent\_martyr, ritual\_ignition, symbolic\_rebirth

## **🕊️ 2. “Build It Like We’ll Stay”**

**Tone**: Optimism + Discipline  
 **Use Case**: After choosing reform / school / mutual aid task chain  
 **Mechanics Triggered**:

* +Revolutionary Discipline (RD) +0.2
* -Symbolic Dissonance in faction
* +Public Trust +0.1 in relevant district
* Reduces fear index in populace

**Speech Text**:

“We are not vandals in borrowed time. We *build it like we’ll stay.* Schools. Kitchens. Clinics. These are not bait for the press. They’re the foundation of the world we’d rather grow than win. When they come with guns, we come with bread. When they leave with bruises, we stay with books. They raze. We raise.”

**SYLVA Tags**: reconstruction\_loop, dream\_manifest, bread\_before\_blood

## **⚖️ 3. “The Discipline to Become”**

**Tone**: Internal Faction Rigidification  
 **Use Case**: After a betrayal, defection, or doctrinal rift  
 **Mechanics Triggered**:

* +Revolutionary Discipline (RD) +0.4
* +Doctrinal Hardening (Faction locks into behavior preset)
* −Coalition Potential with ideologically opposed groups
* +Symbolic Fracture Risk for dissenting cadres

**Speech Text**:

“We don’t become what we dream of by dreaming. We become it by enduring. Every whisper of dissent weakens our reach. Every fracture feeds the enemy. From this day, we walk the line we drew. We *will not* be diluted. This isn’t repression. It’s reverence. The discipline to become is the cost of transformation.”

**SYLVA Tags**: ritual\_hardening, ideology\_forge, cohesion\_through\_loss

## **☠️ 4. “Let It Rot”**

**Tone**: Nihilism Surge / Collapse Acceleration  
 **Use Case**: Triggered after major media scandal, betrayal, or economic collapse  
 **Mechanics Triggered**:

* +Accelerationism +0.3
* −Revolutionary Discipline −0.2
* Symbolic Fatigue +0.1 (overexposure of ideology)
* Unlocks *Burnout Chain* for cadres

**Speech Text**:

“We tried clinics. We tried unions. We tried being nice. They laughed. They crushed. They filmed it. So now? Let it rot. The state, the markets, the apathy. We won’t fix it. We’ll make sure everyone knows it’s unfixable. Smile as it falls, comrade. That’s the sound of *honesty.*”

**SYLVA Tags**: collapse\_euphoria, dissociation\_shield, narrative\_void

## **🛤️ 5. “The Long Walk Home”**

**Tone**: Pacifist Correction / Retreat From Escalation  
 **Use Case**: After a civilian casualty event or overextension  
 **Mechanics Triggered**:

* −Revolutionary Enthusiasm −0.2
* +Revolutionary Discipline +0.3
* Dissonance Repair for cadres or public
* Soft reset of radicalization thresholds in district

**Speech Text**:

“We lost our way. We were fire in search of wood, not meaning. We said we’d never become them. And yet the mother of a child we didn’t mean to kill cries the same in every tongue. This walk back? It will be long. But we take it, together. One step. One tear. One rebuild.”

**SYLVA Tags**: atonement\_circuit, grief\_resistance, narrative\_deescalation

## **🧩 IMPLEMENTATION MECHANICS FOR CURSOR**

Each speech should function as:

* **Speech Object** with:  
  + trigger\_conditions: Event, district, or faction state
  + text: Full speech
  + speaker\_id: Faction leader or chosen cadre
  + faction\_effects: Dict of stat changes (RE, RD, trust, fear, etc.)
  + symbolic\_tags: SYLVA-compatible symbolic resonance triggers
  + visual\_aesthetic\_override: Optional (e.g. sepia filter, slo-mo effects)
  + cadre\_branch\_logic: If certain cadres react negatively/positively

## **🔗 FOLLOW-UP TASK CHAINS**

**Overview**:  
 Follow-up Task Chains are triggered procedurally or manually after key speeches, events, or faction decisions. They simulate ideological momentum, local reactions, and cascading consequences. Each chain is a nested sequence of Task objects with dynamic conditions.

### **🔧 Chain Object Structure**

json

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{

"chain\_id": "chain\_riot\_riotclinic",

"trigger\_type": "event", // could also be "speech", "faction\_threshold", "district\_state"

"trigger\_value": "event\_0456", // e.g. Port District Riot

"linked\_tasks": ["task\_aid\_001", "task\_aid\_002", "task\_speech\_003"],

"faction\_initiator": "mutual\_aid\_front",

"expires\_after\_turns": 6,

"symbolic\_trajectory": "grief\_to\_resistance"

}

### **📈 Example: “Riot to Recovery” Chain**

**Trigger**: Riot event with high civilian casualties  
 **Initiating Faction**: Community Mutual Aid Union

#### **Chain Flow:**

1. Task: Emergency Clinic Build  
   * Type: AID
   * Effects: +District Trust, +Public Sympathy
   * Risk: Low, unless under surveillance
3. Task: Interview Survivors for Zine  
   * Type: PROPAGANDA
   * Effects: +Symbolic Weight, minor public shift
   * SYLVA: grief\_archival, witness\_loop
5. Task: Public Vigil Event  
   * Type: ASSEMBLY
   * Effects: Unlocks “Shared Mourning” district trait, reduces polarization
   * Event Outcome: Chance for police overreaction or right-wing sabotage

## **⚠️ RANDOM ENCOUNTERS DURING MISSIONS**

**Overview**:  
 Each in-world Task has a random\_encounter\_pool based on its type, district risk level, public opinion, and faction visibility. These encounters create branching complications, recruitable NPCs, surveillance, or sudden symbolic dilemmas.

### **🧬 Encounter Object Structure**

json

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{

"encounter\_id": "enc\_surveillance\_pickup",

"task\_type\_match": "SURVEILLANCE",

"district\_risk\_threshold": 0.5,

"trigger\_chance": 0.15,

"description": "Cadre notices they are being followed by a discreet black sedan with no plates.",

"choices": [

{

"text": "Lead them into a trap",

"effect": "Triggers district sting event",

"requires\_trait": "Paranoia > 0.7"

},

{

"text": "Abort the mission quietly",

"effect": "Cancels task but no heat gained"

},

{

"text": "Ignore and continue",

"effect": "Roll: +30% chance of cadre being tagged by state database"

}

],

"symbolic\_tag": "mirror\_shadows"

}

### **🎲 Sample Random Encounters by Task Type**

#### **🕵️ Task: SURVEILLANCE**

* **Encounter**: *Marked by the Watcher*
  + A local child stares too long. Are they spying or just curious?
  + SYLVA: innocence\_watcher, surveillance\_doubt

#### **🧱 Task: BUILD SAFEHOUSE**

* **Encounter**: *Ex-Insurgent Offers Help*
  + A burned-out former revolutionary offers blueprints in exchange for a meal.
  + SYLVA: legacy\_haunt, hope\_in\_ruin

#### **🗞️ Task: PROPAGANDA**

* **Encounter**: *Zine Snatcher*
  + A religious neighbor grabs flyers and tears them up, quoting scripture.
  + Choose to: engage in debate, film confrontation, or flee.

#### **💥 Task: CRAFT EXPLOSIVE**

* **Encounter**: *Missing Wire Spool*
  + A critical component is gone. The supplier may be compromised.
  + Risk of explosion if continued. Unlocks “Supplier Vetting” protocol.

#### **🤝 Task: AID**

* **Encounter**: *Wounded Informant*
  + A state informant seeks help bleeding. Do you save them, interrogate, or finish them?
  + SYLVA: mercy\_loop, poisoned\_rescue

## **📜 CURSOR IMPLEMENTATION CONSIDERATIONS**

### **Task Object Enhancements**

* Add:  
  + random\_encounter\_pool: List of eligible encounter IDs
  + encounter\_trigger\_chance: Float 0-1
  + encounter\_resolution\_hook: Function that returns new tasks, alters heat, or spawns events

### **Follow-Up Chain Triggering**

* Extend task/event/speech objects with:  
  + follow\_up\_chain\_id: Points to prebuilt or procedurally generated chains
  + chain\_trigger\_conditions: Check faction morale, public fear, symbolic overload
  + chain\_consequence\_forecast: SYLVA/WREN narrative modeling (e.g. “grief > action” arc)

Excellent — here’s a full system draft for both **Random Encounter Generation** and **District Trait Mutation**, designed for Cursor integration and SYLVA/WREN emotional-symbolic scaffolding. This includes object structures, trigger logic, symbolic overlays, and development hooks for future procedural growth.

## **🎲 RANDOM ENCOUNTER GENERATION SYSTEM**

### **🔧 Encounter Pooling Architecture**

Each in-world Task, Mission, or Event has access to a contextual **Encounter Pool**:

* Pools are filtered by:  
  + task\_type (e.g., SURVEILLANCE, CRAFTING, PROPAGANDA)
  + district\_traits (e.g., “Highly Policed”, “Culturally Fractured”)
  + faction\_heat\_level
  + public\_mood (fear, hope, rage, apathy)
  + symbolic\_pressure (via SYLVA: high mythic weight events)

### **🧱 Encounter Generation Object**

json

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{

"encounter\_id": "enc\_hospital\_revenant",

"title": "Ghost in the Ward",

"description": "While treating patients, a cadre member sees someone who was supposedly disappeared two months ago. They vanish before being approached.",

"task\_match": ["AID", "INFILTRATE"],

"district\_tags\_required": ["State Trauma Center", "Memory Suppression"],

"trigger\_chance": 0.10,

"SYLVA\_tags": ["spectral\_memory", "hauntings\_of\_resistance"],

"outcomes": [

{

"choice": "Tell no one, continue work",

"effect": "Cadre gains +Paranoia, +Stress"

},

{

"choice": "Investigate quietly",

"effect": "Uncover Task: Unmarked Gravesite",

"risk": "Triggers minor surveillance tag"

},

{

"choice": "Use this as propaganda",

"effect": "Event: 'The Vanished Return' with +Mythic Weight"

}

]

}

### **⚙️ Encounter Runtime Flow**

1. **Pre-check**: On each Task execution, test encounter\_trigger\_chance
2. **Filter**: Match task\_type, district\_tags, and current faction\_symbolic\_pressure
3. **Inject**: Insert one Encounter node with narrative output and player-facing decision
4. **Log Result**: Track symbolic shift, trait changes, stress impact, and new tasks/events

### **🧪 Sample Encounters by Task**

#### **🔧 Task: CRAFTING**

* **“Smuggler’s Apprentice”**: A child offers to help build molotovs, quoting your faction’s slogans.  
  + SYLVA: contaminated\_innocence, intergenerational\_weight
  + Mechanics: Accepting the help may reduce time but raise public scrutiny.

#### **📢 Task: PROPAGANDA**

* **“False Flag Copycats”**: Flyers appear that mimic your design but direct people to a fake rally.  
  + SYLVA: narrative\_sabotage
  + Mechanics: Unlocks Task: “Trace Counter-Propaganda Cell”

#### **🕵️ Task: INFILTRATION**

* **“Eyes Behind the Mirror”**: While sneaking through a records office, a cadre finds a file labeled with their childhood nickname.  
  + SYLVA: identity\_perforation
  + Mechanics: +Stress, +Paranoia, possible leadership trauma arc

## **🌱 DISTRICT TRAIT MUTATION ENGINE**

Districts in *Years of Lead* are not static. They mutate based on trauma, joy, repression, organizing, or symbolic overload. Traits are dynamic flags that affect public opinion shifts, encounter probabilities, faction success odds, and SYLVA overlays.

### **🧱 District Object Sample (After Mutation)**

json

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{

"district\_id": "arts\_quarter",

"base\_traits": ["Culturally Vibrant", "Middle-Class"],

"mutated\_traits": ["Militarized Patrols", "Memetic Fracture"],

"symbolic\_state": {

"grief\_level": 0.7,

"hope\_level": 0.2,

"mythic\_weight": 0.85

},

"active\_encounter\_pool": ["enc\_artist\_disappearance", "enc\_vigil\_dissonance"]

}

### **🔁 Mutation Triggers**

1. **Trauma Saturation** (high grief\_level, >3 deaths, +heat)  
   * Examples: Gains “Haunted by Loss”, “Neighborhood Snitch Culture”
3. **Repression Spike**
   * Examples: “Militarized Zone”, “Silence-as-Survival”
5. **Cultural Emergence** (linked to successful Propaganda, Art, Rallies)  
   * Gains: “Songs of Defiance”, “Spoken Word Resistance”, “Dreamspace Activity”
7. **Symbolic Collapse** (contradictory myths + betrayal + failed uprising)  
   * Gains: “Fractured Identity”, “Moral Vacuum”, “Shadow Factions”
9. **Uplift / Resilience Arc**
   * Gains: “Underground Kindness Net”, “Vigil-District”, “Communal Momentum”

### **🧬 Trait Mutation Mechanics**

* On each Event or Task resolution, call:

ts

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mutateDistrictTraits(district\_id: string, inputs: {

trauma\_score: number,

hope\_score: number,

repression\_delta: number,

faction\_symbolic\_impact: number

})

* Internal logic will:  
  + Decay outdated traits
  + Layer new traits via weighted symbolic rulesets
  + Push or resolve dissonance thresholds
  + Trigger narrative-state flags (e.g. "District Awakened", "District at Breaking Point")

## **📌 CURSOR INTEGRATION POINTERS**

* Build each district with a mutable traitState and a reactive symbolicState.
* Use generateRandomEncounter(task, district) function hooked to every major Task execution.
* Log all trait mutations in a history timeline for timeline replay/debug mode.
* Use SYLVA overlay to provide ambient narrative flavor based on trait combinations.

## **🧍 CHARACTER PERMANENCY SYSTEM**

### **📚 NPC Object Schema**

json

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{

"npc\_id": "npc\_alba\_meneses",

"name": "Alba Meneses",

"role": "Journalist",

"location\_id": "university\_district",

"traits": ["Curious", "Lonely", "Prideful"],

"allegiance": "Neutral",

"trust\_score": 0.45,

"fear\_score": 0.1,

"attraction\_score": 0.3,

"symbolic\_resonance": ["conflicted\_ally", "potential\_icon"],

"known\_tasks": ["event\_riot\_photo", "task\_interview\_revolutionary"],

"vulnerability\_hooks": ["Wants Recognition", "Estranged from Family"],

"relationship\_state": {

"status": "Familiar",

"history": ["interviewed\_cadre\_rojas", "leaked\_photo\_denied"],

"recent\_emotion": "Intrigued",

"contact\_methods": ["in\_person", "dead\_drop"],

"flagged\_for\_storyline": true

}

}

## **🧠 INTERACTION MECHANICS**

Each interaction with an NPC is treated as a Social Operation Task, tied to faction goals or narrative arcs. They can be proactive or reactive.

### **🔧 Interaction Types & Mechanics**

| **Interaction** | **Mechanics** | **Requirements** | **Effects** |
| --- | --- | --- | --- |
| **Seduce** | Roll vs Charisma + Performance/Socialite, modified by attraction, grooming | Attraction > 0.2, recent bonding or vulnerability used | +Trust, open secrets, risk of betrayal if discovered |
| **Butter Up** | Praise, gifts, symbolic flattery (SYLVA-hooked) | Known trait or vulnerability | +Trust, may reduce Fear |
| **Break Down** | Gaslighting, shame, deprivation, mock betrayals | Charisma or Willpower vs target's Sanity | -Sanity, +Fear, may cause Collapse |
| **Gaslight** | False memories or event revisioning | History + Symbolic leverage | Changes memory log, can trigger False Ally state |
| **Bribe** | Spend resources | Greed trait or Financial Stress | +Trust, may shift allegiance or provide info |
| **Threaten** | Use Fear, Presence, or violence exposure | Presence or Combat Reputation | +Fear, risk of public backlash |
| **Kidnap** | Requires a covert team, trigger encounter chain | Stealth roll vs detection + prep tasks | Generates “Missing Person” Event, may collapse trust and induce trauma state |

### **📊 NPC STATS & STATES**

| **Stat** | **Range** | **Effects** |
| --- | --- | --- |
| **Trust** | 0.0–1.0 | Unlocks collaboration, secrets, favors |
| **Fear** | 0.0–1.0 | Unlocks coercion paths, but may block trust routes |
| **Attraction** | 0.0–1.0 | Used in seduction, flirt, or romantic manipulation |
| **Sanity** | 0.0–1.0 | Affects susceptibility to gaslighting, stress, trauma |
| **Loyalty** | Derived from interactions + ideological affinity | Triggers betrayal or conversion events |

### **🎭 RELATIONSHIP STATES**

* **Unfamiliar**: No known contact
* **Familiar**: Recognized, prior interaction
* **Trusted**: Positive engagement >0.6 trust
* **Afraid**: Fear >0.6, trust <0.3
* **Obligated**: Owes your faction a debt (e.g. rescue, saving child)
* **Broken**: High fear, low sanity, marked for trauma
* **Seduced**: Actively romantically engaged with a cadre
* **Double Agent**: Flagged to lie to other factions
* **Kidnapped**: Held in secret, used as leverage or indoctrinated

## **🔀 NPC DIALOGUE FRAMEWORK**

Interactions are powered by modular **SYLVA-tagged dialog trees** which evolve dynamically:

### **Example: Seduction Dialog Tree (Flirt Stage)**

json

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{

"npc\_state": "Familiar",

"attraction\_score": 0.4,

"choices": [

{

"player\_line": "You’ve got a spark they can’t snuff out. I see it.",

"SYLVA\_tag": "recognition\_desire",

"outcome": "+Attraction +Trust"

},

{

"player\_line": "You're smarter than them. Why stay leashed?",

"SYLVA\_tag": "subversion\_appeal",

"outcome": "+Attraction, unlock gaslighting path"

},

{

"player\_line": "[Silent Look]",

"SYLVA\_tag": "intimate\_resonance",

"outcome": "+Tension, test Fear vs Attraction"

}

]

}

## **🔒 LOCK/UNLOCK INTERACTIONS**

Interactions are **gated** by:

* Cadre skill tags (e.g. Seducer, Manipulator, Demagogue, Spy)
* Prior events and faction reputation
* District traits (e.g. “Sexually Conservative” may lock seduction)
* Relationship state (e.g. can’t gaslight someone Trusted & Sane)

## **🌀 SYMBOLIC STATE MODIFIERS (SYLVA INTEGRATION)**

NPCs may carry **emotional-symbolic wounds**:

* abandonment\_fear
* desperate\_to\_belong
* needs\_icon\_to\_follow
* martyr\_replacement
* unprocessed\_grief

These can be **invoked** during interactions to alter odds, shift arc paths, or unlock deeper emotional loops. Each also influences dream sequences, betrayal events, or faction myth-building.

## **🧪 FOLLOW-UP TASK CHAIN**

Each major NPC interaction unlocks new Task or Event entries:

* **Reveal Secret** → new faction info
* **Seduction** → espionage/sabotage
* **Gaslight** → inverted memory log
* **Kidnap** → rescue mission / propaganda escalation

# **Years of Lead - Technical Design Document**

## **Executive Summary**

Years of Lead is a sophisticated political simulation game that models insurgency movements, government responses, and psychological warfare through interconnected systems. This document provides complete technical specifications for development, including architecture, data models, algorithms, and implementation roadmap.

## **1. System Architecture**

### **1.1 Core Architecture Pattern**

* **Pattern**: Event-Driven Architecture with Entity-Component-System (ECS)
* **Primary Language**: TypeScript/JavaScript (Node.js backend, React frontend)
* **Database**: PostgreSQL with Redis for caching
* **Real-time**: WebSocket connections for multiplayer features

### **1.2 System Modules**

├── Core Engine

│ ├── Game State Manager

│ ├── Turn Processor

│ ├── Event Bus

│ └── Save/Load System

├── Faction System

│ ├── AI Behavior Engine

│ ├── Faction Relationships

│ └── Resource Management

├── Government System

│ ├── Response Escalation

│ ├── Policy Engine

│ └── Public Opinion Tracker

├── SYLVA/WREN System

│ ├── Psychological Modeling

│ ├── Narrative Generation

│ └── Character Development

├── Symbolic System

│ ├── Symbol Registry

│ ├── Resonance Calculator

│ └── Mythic Event Generator

├── Negotiation System

│ ├── Dialogue Trees

│ ├── Compromise Engine

│ └── Trust Mechanics

└── UI/UX Layer

├── Game Board

├── Faction Management

├── Event Display

└── Negotiation Interface

## **2. Data Models**

### **2.1 Core Game State**

interface GameState {

id: string;

turn: number;

phase: GamePhase;

startDate: Date;

currentDate: Date;

factions: Map<string, Faction>;

government: Government;

publicOpinion: PublicOpinion;

globalEvents: Event[];

symbolicResonance: SymbolicState;

negotiationStatus: NegotiationState;

gameSettings: GameSettings;

}

enum GamePhase {

PLANNING = "planning",

ACTION = "action",

RESOLUTION = "resolution",

GOVERNMENT\_RESPONSE = "government\_response",

NEGOTIATION = "negotiation"

}

### **2.2 Faction System**

interface Faction {

id: string;

name: string;

ideology: Ideology;

resources: Resources;

members: Member[];

relationships: Map<string, Relationship>;

psychologicalState: PsychologicalProfile;

activeOperations: Operation[];

history: FactionEvent[];

aiPersonality: AIPersonality;

publicSupport: number; // 0-100

governmentInfiltration: number; // 0-100

territorialControl: Territory[];

}

interface Member {

id: string;

name: string;

role: MemberRole;

skills: SkillSet;

loyalty: number; // 0-100

psychologicalProfile: PsychologicalProfile;

traumaLevel: number; // 0-100

imprisonment: PrisonState | null;

relationships: Map<string, PersonalRelationship>;

}

interface Resources {

funds: number;

weapons: WeaponInventory;

safeHouses: SafeHouse[];

intelligence: IntelligenceAssets;

publicSupport: number;

mediaConnections: MediaContact[];

}

enum MemberRole {

LEADER = "leader",

OPERATIVE = "operative",

INTELLIGENCE = "intelligence",

LOGISTICS = "logistics",

PROPAGANDA = "propaganda",

SYMPATHIZER = "sympathizer"

}

### **2.3 Government System**

interface Government {

id: string;

currentPhase: GovernmentPhase;

stability: number; // 0-100

legitimacy: number; // 0-100

responseLevel: ResponseLevel;

policies: Policy[];

securityApparatus: SecurityForce[];

publicSupport: number; // 0-100

economicHealth: number; // 0-100

internationalPressure: number; // 0-100

}

enum GovernmentPhase {

STABLE = "stable",

CONCERNED = "concerned",

REACTIVE = "reactive",

AUTHORITARIAN = "authoritarian",

CRISIS = "crisis"

}

enum ResponseLevel {

MINIMAL = 1,

STANDARD = 2,

ENHANCED = 3,

EMERGENCY = 4,

MARTIAL = 5

}

interface Policy {

id: string;

name: string;

type: PolicyType;

effectOnPublic: number;

effectOnFactions: Map<string, number>;

resourceCost: number;

implementationTime: number;

}

### **2.4 SYLVA/WREN Psychological System**

interface PsychologicalProfile {

// SYLVA Components

wellnessFactors: {

social: number; // 0-100

emotional: number; // 0-100

physical: number; // 0-100

intellectual: number; // 0-100

spiritual: number; // 0-100

};

// Core psychological traits

traits: {

resilience: number; // 0-100

radicalization: number; // 0-100

empathy: number; // 0-100

pragmatism: number; // 0-100

charisma: number; // 0-100

};

// WREN Narrative Elements

personalNarrative: {

coreBeliefs: string[];

traumaticEvents: TraumaEvent[];

motivations: Motivation[];

fears: Fear[];

hopes: Hope[];

};

// Current psychological state

currentState: {

stress: number; // 0-100

morale: number; // 0-100

loyalty: number; // 0-100

burnout: number; // 0-100

};

}

interface TraumaEvent {

id: string;

type: TraumaType;

severity: number; // 0-100

dateOccurred: Date;

source: string; // What caused it

processed: boolean; // Has it been psychologically processed?

triggerKeywords: string[];

}

enum TraumaType {

VIOLENCE\_WITNESSED = "violence\_witnessed",

VIOLENCE\_EXPERIENCED = "violence\_experienced",

LOSS\_OF\_LOVED\_ONE = "loss\_of\_loved\_one",

IMPRISONMENT = "imprisonment",

BETRAYAL = "betrayal",

IDEOLOGICAL\_CRISIS = "ideological\_crisis"

}

### **2.5 Symbolic System**

interface SymbolicState {

activeSymbols: Map<string, Symbol>;

narrativeThemes: NarrativeTheme[];

mythicResonance: number; // 0-100

publicSymbolicAwareness: number; // 0-100

}

interface Symbol {

id: string;

name: string;

type: SymbolType;

power: number; // 0-100

associations: string[];

historicalContext: string;

resonanceWithFactions: Map<string, number>;

resonanceWithPublic: number;

governmentSuppression: number; // How much government tries to suppress it

}

enum SymbolType {

PERSON = "person",

LOCATION = "location",

EVENT = "event",

OBJECT = "object",

CONCEPT = "concept",

DATE = "date"

}

interface NarrativeTheme {

id: string;

theme: string;

strength: number; // 0-100

supportingEvents: string[];

oppositionalNarratives: string[];

}

### **2.6 Operations System**

interface Operation {

id: string;

name: string;

type: OperationType;

planningFaction: string;

participants: string[]; // Member IDs

target: OperationTarget;

plannedDate: Date;

status: OperationStatus;

successProbability: number; // 0-100

resourceRequirements: Resources;

potentialConsequences: Consequence[];

symbolicSignificance: number; // 0-100

}

enum OperationType {

PROPAGANDA = "propaganda",

SABOTAGE = "sabotage",

ASSASSINATION = "assassination",

KIDNAPPING = "kidnapping",

BOMBING = "bombing",

ROBBERY = "robbery",

DEMONSTRATION = "demonstration",

STRIKE = "strike",

INTELLIGENCE = "intelligence",

RECRUITMENT = "recruitment"

}

interface OperationTarget {

type: TargetType;

id: string;

name: string;

securityLevel: number; // 0-100

symbolicValue: number; // 0-100

strategicValue: number; // 0-100

}

enum TargetType {

GOVERNMENT\_OFFICIAL = "government\_official",

SECURITY\_FORCE = "security\_force",

CORPORATE\_LEADER = "corporate\_leader",

INFRASTRUCTURE = "infrastructure",

MEDIA\_OUTLET = "media\_outlet",

PUBLIC\_SPACE = "public\_space",

SYMBOLIC\_LOCATION = "symbolic\_location"

}

## **3. Core Algorithms**

### **3.1 Government Response Escalation**

class GovernmentResponseEngine {

calculateResponseLevel(currentState: Government, recentEvents: Event[]): ResponseLevel {

let escalationPoints = 0;

// Base escalation from recent violence

recentEvents.forEach(event => {

if (event.type === EventType.VIOLENT\_OPERATION) {

escalationPoints += event.severity \* event.publicVisibility \* 0.1;

}

});

// Modifiers

escalationPoints \*= (1 - currentState.stability / 100); // Less stable = more reactive

escalationPoints \*= (1 + currentState.publicPressure / 100); // More pressure = more reactive

// International pressure moderator

escalationPoints \*= (1 - currentState.internationalPressure / 200);

return this.mapPointsToLevel(escalationPoints);

}

generateGovernmentActions(responseLevel: ResponseLevel, targetFactions: Faction[]): GovernmentAction[] {

const actions: GovernmentAction[] = [];

switch(responseLevel) {

case ResponseLevel.MINIMAL:

actions.push(new InvestigationAction());

break;

case ResponseLevel.STANDARD:

actions.push(new ArrestWarrantAction());

actions.push(new SurveillanceAction());

break;

case ResponseLevel.ENHANCED:

actions.push(new RaidAction());

actions.push(new MediaSuppressionAction());

break;

case ResponseLevel.EMERGENCY:

actions.push(new MassArrestAction());

actions.push(new CurfewAction());

break;

case ResponseLevel.MARTIAL:

actions.push(new MartialLawAction());

actions.push(new SuspendRightsAction());

break;

}

return actions;

}

}

### **3.2 Faction AI Behavior**

class FactionAI {

private faction: Faction;

private gameState: GameState;

constructor(faction: Faction, gameState: GameState) {

this.faction = faction;

this.gameState = gameState;

}

decideTurnActions(): Action[] {

const actions: Action[] = [];

const threatLevel = this.assessThreatLevel();

const opportunities = this.identifyOpportunities();

// Priority system based on faction psychology

const priorities = this.calculatePriorities(threatLevel, opportunities);

// Generate actions based on priorities

if (priorities.survival > 0.8) {

actions.push(...this.generateSurvivalActions());

} else if (priorities.growth > 0.6) {

actions.push(...this.generateGrowthActions());

} else if (priorities.operation > 0.7) {

actions.push(...this.generateOperationalActions());

}

return this.filterActionsByResources(actions);

}

private calculatePriorities(threatLevel: number, opportunities: Opportunity[]): ActionPriorities {

const personality = this.faction.aiPersonality;

return {

survival: threatLevel \* personality.cautiousness,

growth: (1 - threatLevel) \* personality.ambition,

operation: opportunities.reduce((sum, opp) => sum + opp.attractiveness, 0) \* personality.aggression,

diplomacy: this.faction.relationships.size \* personality.cooperation

};

}

private assessThreatLevel(): number {

let threat = 0;

// Government pressure

threat += this.gameState.government.responseLevel \* 0.2;

// Faction members in prison

const imprisonedCount = this.faction.members.filter(m => m.imprisonment !== null).length;

threat += (imprisonedCount / this.faction.members.length) \* 0.3;

// Resource scarcity

if (this.faction.resources.funds < 1000) threat += 0.2;

if (this.faction.resources.safeHouses.length < 2) threat += 0.2;

// Recent losses

const recentFailures = this.faction.history

.filter(event => event.date > new Date(Date.now() - 30 \* 24 \* 60 \* 60 \* 1000))

.filter(event => event.type === FactionEventType.OPERATION\_FAILED);

threat += recentFailures.length \* 0.1;

return Math.min(threat, 1.0);

}

}

### **3.3 Psychological State Evolution**

class PsychologicalEngine {

updateMemberPsychology(member: Member, events: Event[], timeElapsed: number): void {

// Process trauma events

events.forEach(event => {

if (this.affectsMember(event, member)) {

this.applyTrauma(member, event);

}

});

// Natural healing over time

this.applyTimeBasedHealing(member, timeElapsed);

// Update current psychological state

this.updateCurrentState(member);

// Check for psychological breaking points

this.checkBreakingPoints(member);

}

private applyTrauma(member: Member, event: Event): void {

const traumaEvent = this.createTraumaEvent(event, member);

member.psychologicalProfile.personalNarrative.traumaticEvents.push(traumaEvent);

// Immediate psychological impact

const impact = this.calculateTraumaImpact(traumaEvent, member);

member.psychologicalProfile.currentState.stress += impact.stress;

member.psychologicalProfile.currentState.morale -= impact.morale;

member.loyalty -= impact.loyalty;

// Clamp values

this.clampPsychologicalValues(member);

}

private checkBreakingPoints(member: Member): PsychologicalEvent[] {

const events: PsychologicalEvent[] = [];

const state = member.psychologicalProfile.currentState;

if (state.stress > 90 && Math.random() < 0.3) {

events.push(new BreakdownEvent(member.id));

}

if (member.loyalty < 20 && state.stress > 70 && Math.random() < 0.2) {

events.push(new DefectionEvent(member.id));

}

if (state.burnout > 80 && Math.random() < 0.25) {

events.push(new WithdrawalEvent(member.id));

}

return events;

}

}

### **3.4 Symbolic Resonance Calculator**

class SymbolicResonanceEngine {

calculateEventResonance(event: Event, symbols: Map<string, Symbol>): ResonanceResult {

let totalResonance = 0;

const affectedSymbols: string[] = [];

// Check event against each active symbol

symbols.forEach((symbol, symbolId) => {

const resonance = this.calculateSymbolEventResonance(symbol, event);

if (resonance > 0.1) {

totalResonance += resonance;

affectedSymbols.push(symbolId);

// Update symbol power

symbol.power = Math.min(symbol.power + resonance \* 10, 100);

}

});

// Create new symbols if event is significant enough

if (event.significance > 0.8 && Math.random() < 0.3) {

const newSymbol = this.createSymbolFromEvent(event);

symbols.set(newSymbol.id, newSymbol);

affectedSymbols.push(newSymbol.id);

}

return {

totalResonance,

affectedSymbols,

publicImpact: this.calculatePublicSymbolicImpact(totalResonance),

factionImpacts: this.calculateFactionSymbolicImpacts(affectedSymbols, symbols)

};

}

private calculateSymbolEventResonance(symbol: Symbol, event: Event): number {

let resonance = 0;

// Direct associations

symbol.associations.forEach(association => {

if (event.description.toLowerCase().includes(association.toLowerCase())) {

resonance += 0.3;

}

});

// Contextual resonance

if (symbol.type === SymbolType.LOCATION && event.location === symbol.id) {

resonance += 0.5;

}

if (symbol.type === SymbolType.PERSON && event.involvedPersons.includes(symbol.id)) {

resonance += 0.4;

}

// Temporal resonance (anniversaries, etc.)

if (this.isTemporallyResonant(symbol, event)) {

resonance += 0.2;

}

return Math.min(resonance, 1.0);

}

}

## **4. Game Systems Integration**

### **4.1 Turn Structure**

class TurnProcessor {

async processTurn(gameState: GameState): Promise<GameState> {

const newState = { ...gameState };

newState.turn++;

// Phase 1: Planning

await this.processPlanningPhase(newState);

// Phase 2: Action Execution

await this.processActionPhase(newState);

// Phase 3: Resolution & Consequences

await this.processResolutionPhase(newState);

// Phase 4: Government Response

await this.processGovernmentResponse(newState);

// Phase 5: Psychological Updates

await this.processPsychologicalUpdates(newState);

// Phase 6: Symbolic Updates

await this.processSymbolicUpdates(newState);

// Phase 7: Negotiation Opportunities

await this.checkNegotiationTriggers(newState);

return newState;

}

private async processActionPhase(gameState: GameState): Promise<void> {

// Collect all planned actions from factions

const allActions: Action[] = [];

gameState.factions.forEach(faction => {

const factionActions = this.factionAI.get(faction.id)?.decideTurnActions() || [];

allActions.push(...factionActions);

});

// Sort actions by initiative/timing

allActions.sort((a, b) => b.initiative - a.initiative);

// Execute actions in order

for (const action of allActions) {

await this.executeAction(action, gameState);

}

}

private async executeAction(action: Action, gameState: GameState): Promise<ActionResult> {

const executor = gameState.factions.get(action.executorId);

if (!executor) throw new Error(`Unknown faction: ${action.executorId}`);

// Calculate success probability

const successChance = this.calculateSuccessChance(action, executor, gameState);

const success = Math.random() < successChance;

// Apply results

const result = await this.applyActionResults(action, success, gameState);

// Generate events

const events = this.generateEventsFromAction(action, result);

gameState.globalEvents.push(...events);

// Update psychological states

this.updatePsychologyFromAction(action, result, gameState);

return result;

}

}

### **4.2 Event System**

interface Event {

id: string;

type: EventType;

timestamp: Date;

turn: number;

title: string;

description: string;

participants: string[];

location: string;

severity: number; // 0-100

publicVisibility: number; // 0-100

significance: number; // 0-100

consequences: Consequence[];

symbolicElements: string[];

mediaReaction: MediaReaction;

governmentReaction: GovernmentReaction;

}

enum EventType {

OPERATION\_SUCCESS = "operation\_success",

OPERATION\_FAILED = "operation\_failed",

MEMBER\_ARRESTED = "member\_arrested",

MEMBER\_KILLED = "member\_killed",

GOVERNMENT\_CRACKDOWN = "government\_crackdown",

PUBLIC\_DEMONSTRATION = "public\_demonstration",

NEGOTIATION\_ATTEMPT = "negotiation\_attempt",

SYMBOLIC\_EVENT = "symbolic\_event",

INTERNATIONAL\_PRESSURE = "international\_pressure",

FACTION\_SPLIT = "faction\_split",

FACTION\_MERGER = "faction\_merger"

}

class EventGenerator {

generateOperationEvent(operation: Operation, result: OperationResult): Event {

return {

id: this.generateId(),

type: result.success ? EventType.OPERATION\_SUCCESS : EventType.OPERATION\_FAILED,

timestamp: new Date(),

turn: this.currentTurn,

title: this.generateEventTitle(operation, result),

description: this.generateEventDescription(operation, result),

participants: operation.participants,

location: operation.target.name,

severity: this.calculateSeverity(operation, result),

publicVisibility: this.calculatePublicVisibility(operation, result),

significance: this.calculateSignificance(operation, result),

consequences: result.consequences,

symbolicElements: this.extractSymbolicElements(operation),

mediaReaction: this.generateMediaReaction(operation, result),

governmentReaction: this.generateGovernmentReaction(operation, result)

};

}

}

## **5. User Interface Specifications**

### **5.1 Main Game Board**

interface GameBoardState {

currentView: ViewMode;

selectedFaction: string | null;

selectedMember: string | null;

activeOperations: Operation[];

recentEvents: Event[];

currentTurn: number;

gamePhase: GamePhase;

}

enum ViewMode {

OVERVIEW = "overview",

FACTION\_DETAIL = "faction\_detail",

OPERATIONS = "operations",

NEGOTIATIONS = "negotiations",

INTELLIGENCE = "intelligence",

PSYCHOLOGICAL = "psychological"

}

// React component structure

const GameBoard: React.FC = () => {

const [gameState, setGameState] = useState<GameState>();

const [boardState, setBoardState] = useState<GameBoardState>();

return (

<div className="game-board">

<Header

turn={gameState.turn}

phase={gameState.phase}

onPhaseAdvance={handlePhaseAdvance}

/>

<div className="main-content">

<Sidebar

factions={gameState.factions}

selectedFaction={boardState.selectedFaction}

onFactionSelect={handleFactionSelect}

/>

<MainView

viewMode={boardState.currentView}

gameState={gameState}

onStateChange={handleStateChange}

/>

<EventFeed

events={gameState.globalEvents}

maxEvents={10}

/>

</div>

<StatusBar

publicOpinion={gameState.publicOpinion}

governmentStability={gameState.government.stability}

symbolicResonance={gameState.symbolicResonance.mythicResonance}

/>

</div>

);

};

### **5.2 Faction Management Interface**

const FactionPanel: React.FC<{faction: Faction}> = ({ faction }) => {

return (

<div className="faction-panel">

<FactionHeader faction={faction} />

<Tabs defaultValue="members">

<TabsList>

<TabsTrigger value="members">Members</TabsTrigger>

<TabsTrigger value="operations">Operations</TabsTrigger>

<TabsTrigger value="resources">Resources</TabsTrigger>

<TabsTrigger value="psychology">Psychology</TabsTrigger>

</TabsList>

<TabsContent value="members">

<MembersList

members={faction.members}

onMemberSelect={handleMemberSelect}

/>

</TabsContent>

<TabsContent value="operations">

<OperationsPlanner

faction={faction}

onOperationPlan={handleOperationPlan}

/>

</TabsContent>

<TabsContent value="resources">

<ResourceManager

resources={faction.resources}

onResourceAllocate={handleResourceAllocate}

/>

</TabsContent>

<TabsContent value="psychology">

<PsychologyDashboard

profile={faction.psychologicalState}

members={faction.members}

/>

</TabsContent>

</Tabs>

</div>

);

};

## **6. Database Schema**

### **6.1 PostgreSQL Tables**

-- Game Sessions

CREATE TABLE game\_sessions (

id UUID PRIMARY KEY DEFAULT gen\_random\_uuid(),

name VARCHAR(255) NOT NULL,

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

updated\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

current\_turn INTEGER DEFAULT 1,

game\_phase VARCHAR(50) DEFAULT 'planning',

settings JSONB

);

-- Factions

CREATE TABLE factions (

id UUID PRIMARY KEY DEFAULT gen\_random\_uuid(),

game\_session\_id UUID REFERENCES game\_sessions(id),

name VARCHAR(255) NOT NULL,

ideology JSONB,

resources JSONB,

psychological\_state JSONB,

ai\_personality JSONB,

created\_at TIMESTAMP DEFAULT CURRENT\_TIMESTAMP

);

-- Members

CREATE TABLE members (

id UUID PRIMARY KEY DEFAULT gen\_random\_uuid(),

faction\_id UUID REFERENCES factions(id),

name VARCHAR(255) NOT NULL,

role VARCHAR(100),

skills JSONB,

loyalty INTEGER CHECK (loyalty >= 0 AND loyalty <= 100),

psychological\_profile JSONB,

trauma\_level INTEGER CHECK (trauma\_level >= 0 AND trauma\_level <= 100),

imprisonment\_state JSONB

);

-- Operations

CREATE TABLE operations (

id UUID PRIMARY KEY DEFAULT gen\_random\_uuid(),

faction\_id UUID REFERENCES factions(id),

name VARCHAR(255) NOT NULL,

type VARCHAR(100),

target JSONB,

planned\_date TIMESTAMP,

status VARCHAR(50),

participants JSONB, -- Array of member IDs

success\_probability INTEGER,

resource\_requirements JSONB,

symbolic\_significance INTEGER

);

-- Events

CREATE TABLE events (

id UUID PRIMARY KEY DEFAULT gen\_random\_uuid(),

game\_session\_id UUID REFERENCES game\_sessions(id),

type VARCHAR(100),

timestamp TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

turn\_number INTEGER,

title VARCHAR(500),

description TEXT,

participants JSONB,

location VARCHAR(255),

severity INTEGER CHECK (severity >= 0 AND severity <= 100),

public\_visibility INTEGER CHECK (public\_visibility >= 0 AND public\_visibility <= 100),

significance INTEGER CHECK (significance >= 0 AND significance <= 100),

consequences JSONB,

symbolic\_elements JSONB

);

-- Symbols

CREATE TABLE symbols (

id UUID PRIMARY KEY DEFAULT gen\_random\_uuid(),

game\_session\_id UUID REFERENCES game\_sessions(id),

name VARCHAR(255) NOT NULL,

type VARCHAR(100),

power INTEGER CHECK (power >= 0 AND power <= 100),

associations JSONB,

historical\_context TEXT,

resonance\_data JSONB

);

-- Government State

CREATE TABLE government\_states (

id UUID PRIMARY KEY DEFAULT gen\_random\_uuid(),

game\_session\_id UUID REFERENCES game\_sessions(id),

turn\_number INTEGER,

phase VARCHAR(100),

stability INTEGER CHECK (stability >= 0 AND stability <= 100),

legitimacy INTEGER CHECK (legitimacy >= 0 AND legitimacy <= 100),

response\_level INTEGER CHECK (response\_level >= 1 AND response\_level <= 5),

policies JSONB,

security\_apparatus JSONB

);

### **6.2 Redis Caching Strategy**

interface CacheStrategy {

// Game state caching

gameState: {

key: (gameId: string) => string;

ttl: number; // 5 minutes

};

// Turn calculations

turnCalculations: {

key: (gameId: string, turn: number) => string;

ttl: number; // 30 minutes

};

// AI decisions

aiDecisions: {

key: (factionId: string, turn: number) => string;

ttl: number; // 15 minutes

};

// Event feed

recentEvents: {

key: (gameId: string) => string;

ttl: number; // 10 minutes

};

}

class CacheManager {

private redis: Redis;

async cacheGameState(gameId: string, state: GameState): Promise<void> {

const key = `game:${gameId}:state`;

await this.redis.setex(key, 300, JSON.stringify(state));

}

async getCachedGameState(gameId: string): Promise<GameState | null> {

const key = `game:${gameId}:state`;

const cached = await this.redis.get(key);

return cached ? JSON.parse(cached) : null;

}

}

## **7. API Specifications**

### **7.1 RESTful API Endpoints**

// Game Management

POST /api/games // Create new game

GET /api/games/:id // Get game state

PUT /api/games/:id // Update game state

DELETE /api/games/:id // Delete game

// Turn Management

POST /api/games/:id/turns/advance // Advance to next turn

GET /api/games/:id/turns/:turn // Get specific turn data

POST /api/games/:id/turns/:turn/actions // Submit turn actions

// Faction Management

GET /api/games/:id/factions // Get all factions

GET /api/games/:id/factions/:factionId // Get specific faction

PUT /api/games/:id/factions/:factionId // Update faction

POST /api/games/:id/factions/:factionId/operations // Plan operation

// Member Management

GET /api/games/:id/factions/:factionId/members // Get faction members

PUT /api/games/:id/factions/:factionId/members/:memberId // Update member

POST /api/games/:id/factions/:factionId/members // Add new member

// Operations

POST /api/games/:id/operations // Create operation

PUT /api/games/:id/operations/:opId // Update operation

POST /api/games/:id/operations/:opId/execute // Execute operation

// Events

GET /api/games/:id/events // Get event history

GET /api/games/:id/events/recent // Get recent events

POST /api/games/:id/events // Create custom event

// Negotiations

GET /api/games/:id/negotiations // Get active negotiations

POST /api/games/:id/negotiations // Start negotiation

PUT /api/games/:id/negotiations/:negId // Update negotiation

POST /api/games/:id/negotiations/:negId/respond // Respond to negotiation

// Analytics

GET /api/games/:id/analytics/overview // Game overview stats

GET /api/games/:id/analytics/factions // Faction performance

GET /api/games/:id/analytics/psychology // Psychological trends

### **7.2 WebSocket API for Real-time Updates**

interface WebSocketMessage {

type: MessageType;

gameId: string;

data: any;

timestamp: Date;

}

enum MessageType {

GAME\_STATE\_UPDATE = "game\_state\_update",

TURN\_ADVANCED = "turn\_advanced",

EVENT\_OCCURRED = "event\_occurred",

OPERATION\_COMPLETED = "operation\_completed",

NEGOTIATION\_STARTED = "negotiation\_started",

FACTION\_UPDATED = "faction\_updated",

PSYCHOLOGICAL\_UPDATE = "psychological\_update"

}

class WebSocketHandler {

handleConnection(socket: WebSocket, gameId: string): void {

// Subscribe to game updates

this.subscribeToGame(socket, gameId);

socket.on('message', (message: WebSocketMessage) => {

this.handleMessage(socket, message);

});

socket.on('disconnect', () => {

this.unsubscribeFromGame(socket, gameId);

});

}

broadcastToGame(gameId: string, message: WebSocketMessage): void {

const subscribers = this.gameSubscribers.get(gameId) || [];

subscribers.forEach(socket => {

socket.send(JSON.stringify(message));

});

}

}

## **8. Implementation Roadmap**

### **8.1 Development Phases**

#### **Phase 1: Core Foundation (Months 1-3)**

**Goal**: Establish basic game loop and core systems

**Deliverables**:

* Basic game state management
* Simple faction system with AI
* Basic government response system
* Core turn processing
* Simple UI for game state viewing
* Basic operation planning and execution

**Technical Milestones**:

* Database schema implementation
* Core API endpoints
* Basic React UI components
* Simple AI decision trees
* Turn advancement logic

#### **Phase 2: Psychological Systems (Months 4-6)**

**Goal**: Implement SYLVA/WREN psychological modeling

**Deliverables**:

* Complete psychological profile system
* Trauma processing and healing
* Member loyalty and defection mechanics
* Psychological state UI
* Basic narrative generation

**Technical Milestones**:

* PsychologicalEngine implementation
* Member state evolution algorithms
* Psychological event triggers
* WREN narrative content system
* Psychology dashboard UI

#### **Phase 3: Symbolic and Narrative Systems (Months 7-9)**

**Goal**: Add symbolic resonance and emergent narrative

**Deliverables**:

* Symbol creation and evolution
* Mythic resonance calculations
* Event symbolic significance
* Advanced narrative generation
* Cultural and historical context system

**Technical Milestones**:

* SymbolicResonanceEngine
* Narrative template system
* Cultural context database
* Symbol visualization UI
* Historical event correlation

#### **Phase 4: Advanced Features (Months 10-12)**

**Goal**: Complete feature set and polish

**Deliverables**:

* Complex negotiation system
* Advanced government responses
* Faction relationship mechanics
* Prison resistance system
* International pressure modeling

**Technical Milestones**:

* Negotiation dialogue trees
* Advanced AI personalities
* Complex government policies
* International actor simulation
* Faction diplomacy system

#### **Phase 5: Polish and Optimization (Months 13-15)**

**Goal**: Game balance, performance, and user experience

**Deliverables**:

* Comprehensive balancing
* Performance optimization
* Advanced UI/UX
* Tutorial system
* Multiplayer support

### **8.2 Critical Path Dependencies**

interface DependencyGraph {

coreEngine: {

dependencies: [];

blockers: ["gameState", "turnProcessor"];

};

factionAI: {

dependencies: ["coreEngine"];

blockers: ["psychologySystem"];

};

psychologySystem: {

dependencies: ["coreEngine", "factionAI"];

blockers: ["narrativeGeneration"];

};

symbolicSystem: {

dependencies: ["psychologySystem"];

blockers: ["advancedNarrative"];

};

negotiationSystem: {

dependencies: ["factionAI", "psychologySystem"];

blockers: ["finalPolish"];

};

}

## **9. Testing Strategy**

### **9.1 Unit Testing Framework**

// Jest configuration for game logic testing

describe('Government Response Engine', () => {

let engine: GovernmentResponseEngine;

let mockGameState: GameState;

beforeEach(() => {

engine = new GovernmentResponseEngine();

mockGameState = createMockGameState();

});

test('should escalate response level after violent operation', () => {

const violentEvent = createMockEvent({

type: EventType.OPERATION\_SUCCESS,

severity: 80,

publicVisibility: 90

});

const newLevel = engine.calculateResponseLevel(

mockGameState.government,

[violentEvent]

);

expect(newLevel).toBeGreaterThan(ResponseLevel.MINIMAL);

});

test('should generate appropriate actions for response level', () => {

const actions = engine.generateGovernmentActions(

ResponseLevel.ENHANCED,

Array.from(mockGameState.factions.values())

);

expect(actions).toContain(expect.objectContaining({

type: ActionType.RAID

}));

});

});

// Integration testing for complex systems

describe('Psychological System Integration', () => {

test('trauma should affect member loyalty over time', async () => {

const member = createMockMember();

const traumaEvent = createTraumaEvent(TraumaType.VIOLENCE\_WITNESSED, 80);

const engine = new PsychologicalEngine();

engine.updateMemberPsychology(member, [traumaEvent], 30); // 30 days

expect(member.loyalty).toBeLessThan(member.initialLoyalty);

expect(member.psychologicalProfile.currentState.stress).toBeGreaterThan(50);

});

});

### **9.2 Load Testing Specifications**

interface LoadTestScenarios {

singlePlayer: {

maxConcurrentGames: 1000;

turnProcessingTime: "< 2 seconds";

memoryUsagePerGame: "< 50MB";

};

multiplayer: {

maxPlayersPerGame: 6;

maxConcurrentMultiplayerGames: 100;

realTimeUpdateLatency: "< 100ms";

};

aiProcessing: {

maxFactionsPerGame: 10;

aiDecisionTime: "< 5 seconds";

concurrentAICalculations: 50;

};

}

// Performance testing with K6

const loadTestScript = `

import http from 'k6/http';

import { check } from 'k6';

export let options = {

stages: [

{ duration: '2m', target: 100 }, // Ramp up

{ duration: '5m', target: 100 }, // Stay at 100 users

{ duration: '2m', target: 0 }, // Ramp down

],

};

export default function() {

// Test turn advancement under load

let response = http.post('http://localhost:3000/api/games/test-game/turns/advance');

check(response, {

'turn advancement successful': (r) => r.status === 200,

'response time < 2s': (r) => r.timings.duration < 2000,

});

}

`;

### **9.3 Psychological System Validation**

class PsychologyValidator {

validateTraumaProgression(testCases: TraumaTestCase[]): ValidationResult {

const results: ValidationResult[] = [];

testCases.forEach(testCase => {

const member = createMemberWithProfile(testCase.initialProfile);

const engine = new PsychologicalEngine();

// Apply trauma events

testCase.traumaEvents.forEach(event => {

engine.updateMemberPsychology(member, [event], 0);

});

// Check expected outcomes

const loyaltyChange = member.loyalty - testCase.initialProfile.loyalty;

const stressLevel = member.psychologicalProfile.currentState.stress;

results.push({

testCase: testCase.name,

loyaltyChangeExpected: testCase.expectedLoyaltyChange,

loyaltyChangeActual: loyaltyChange,

stressExpected: testCase.expectedStress,

stressActual: stressLevel,

passed: this.withinTolerance(loyaltyChange, testCase.expectedLoyaltyChange, 5) &&

this.withinTolerance(stressLevel, testCase.expectedStress, 10)

});

});

return this.summarizeResults(results);

}

}

## **10. Performance Optimization**

### **10.1 Game State Management**

class OptimizedGameStateManager {

private stateCache: Map<string, GameState> = new Map();

private dirtyFlags: Map<string, DirtyState> = new Map();

// Lazy loading of faction details

async getFactionDetails(gameId: string, factionId: string): Promise<Faction> {

const cacheKey = `${gameId}:faction:${factionId}`;

if (this.stateCache.has(cacheKey)) {

return this.stateCache.get(cacheKey) as Faction;

}

const faction = await this.database.loadFaction(factionId);

this.stateCache.set(cacheKey, faction);

return faction;

}

// Incremental state updates

updateFactionState(gameId: string, factionId: string, updates: Partial<Faction>): void {

const cacheKey = `${gameId}:faction:${factionId}`;

const existing = this.stateCache.get(cacheKey) as Faction;

if (existing) {

Object.assign(existing, updates);

this.markDirty(cacheKey);

}

}

// Batch persistence

async persistDirtyStates(): Promise<void> {

const dirtyKeys = Array.from(this.dirtyFlags.keys());

const batchOperations = dirtyKeys.map(key => ({

key,

data: this.stateCache.get(key)

}));

await this.database.batchUpdate(batchOperations);

this.dirtyFlags.clear();

}

}

### **10.2 AI Processing Optimization**

class OptimizedFactionAI {

private decisionCache: Map<string, CachedDecision> = new Map();

private workerPool: WorkerPool;

constructor() {

this.workerPool = new WorkerPool(4); // 4 worker threads for AI calculations

}

async decideTurnActionsParallel(factions: Faction[]): Promise<Map<string, Action[]>> {

// Split factions across worker threads

const chunks = this.chunkArray(factions, 4);

const promises = chunks.map(chunk =>

this.workerPool.execute('calculateFactionDecisions', chunk)

);

const results = await Promise.all(promises);

return this.mergeResults(results);

}

// Memoization for expensive calculations

private getCachedThreatAssessment(faction: Faction, gameState: GameState): number {

const cacheKey = this.generateThreatCacheKey(faction, gameState);

const cached = this.decisionCache.get(cacheKey);

if (cached && cached.timestamp > Date.now() - 300000) { // 5 minute cache

return cached.threatLevel;

}

const threatLevel = this.calculateThreatLevel(faction, gameState);

this.decisionCache.set(cacheKey, {

threatLevel,

timestamp: Date.now()

});

return threatLevel;

}

}

## **11. Security Considerations**

### **11.1 Input Validation**

// Input sanitization for user-generated content

class SecurityValidator {

validateGameAction(action: any): ValidationResult {

const schema = {

type: 'object',

required: ['type', 'executorId', 'target'],

properties: {

type: { enum: Object.values(ActionType) },

executorId: { type: 'string', pattern: '^[a-zA-Z0-9-]+ },

target: { type: 'object' },

parameters: { type: 'object' }

}

};

return this.jsonSchemaValidator.validate(action, schema);

}

sanitizeUserInput(input: string): string {

return input

.replace(/<script\b[^<]\*(?:(?!<\/script>)<[^<]\*)\*<\/script>/gi, '')

.replace(/javascript:/gi, '')

.replace(/on\w+\s\*=/gi, '')

.trim()

.substring(0, 1000); // Limit length

}

}

### **11.2 Authentication and Authorization**

interface UserPermissions {

canCreateGame: boolean;

canJoinGame: boolean;

canControlFaction: string[]; // Faction IDs user can control

isGameMaster: boolean;

canViewAnalytics: boolean;

}

class AuthorizationService {

async checkActionPermission(

userId: string,

gameId: string,

action: Action

): Promise<boolean> {

const user = await this.getUserById(userId);

const permissions = await this.getGamePermissions(userId, gameId);

// Check if user can control the faction performing the action

if (!permissions.canControlFaction.includes(action.executorId)) {

return false;

}

// Check action-specific permissions

if (action.type === ActionType.ADMIN\_OVERRIDE && !permissions.isGameMaster) {

return false;

}

return true;

}

}

## **12. Content Generation Systems**

### **12.1 WREN Narrative Engine**

class WRENNarrativeEngine {

private templates: NarrativeTemplate[];

private contextDatabase: ContextDatabase;

generateEventNarrative(event: Event, context: GameContext): GeneratedNarrative {

// Select appropriate template

const template = this.selectTemplate(event, context);

// Extract narrative elements

const elements = this.extractNarrativeElements(event, context);

// Generate base narrative

const baseNarrative = this.fillTemplate(template, elements);

// Add psychological depth

const psychologicalLayer = this.addPsychologicalDepth(baseNarrative, context);

// Add symbolic resonance

const symbolicLayer = this.addSymbolicResonance(psychologicalLayer, context);

return {

title: this.generateTitle(event, elements),

description: symbolicLayer,

emotionalTone: this.calculateEmotionalTone(elements),

symbolicElements: this.identifySymbolicElements(symbolicLayer),

psychologicalImpact: this.calculatePsychologicalImpact(elements)

};

}

private selectTemplate(event: Event, context: GameContext): NarrativeTemplate {

const candidates = this.templates.filter(template =>

template.eventTypes.includes(event.type) &&

template.contextMatch(context) > 0.7

);

// Weight by contextual relevance and variety

const weights = candidates.map(template => ({

template,

weight: template.contextMatch(context) \* (1 - template.recentUsage)

}));

return this.weightedRandomSelect(weights);

}

}

interface NarrativeTemplate {

id: string;

eventTypes: EventType[];

template: string;

variables: TemplateVariable[];

contextMatch: (context: GameContext) => number;

recentUsage: number; // 0-1, to avoid repetition

emotionalTags: string[];

symbolicTags: string[];

}

### **12.2 Dynamic Dialogue System**

class DynamicDialogueGenerator {

generateNegotiationDialogue(

faction: Faction,

government: Government,

context: NegotiationContext

): DialogueTree {

const factionPersonality = this.analyzeFactionPersonality(faction);

const governmentStance = this.analyzeGovernmentStance(government, context);

return {

rootNode: this.generateRootDialogue(factionPersonality, governmentStance),

branches: this.generateDialogueBranches(context),

conditionalNodes: this.generateConditionalResponses(faction, government),

outcomeNodes: this.generateOutcomeNodes(context)

};

}

private generateDialogueBranches(context: NegotiationContext): DialogueBranch[] {

const branches: DialogueBranch[] = [];

// Generate faction demands

branches.push({

id: 'faction\_demands',

text: this.generateDemandText(context.factionGoals),

conditions: this.createDemandConditions(context),

responses: this.generateGovernmentResponses(context)

});

// Generate compromise offers

branches.push({

id: 'compromise\_offer',

text: this.generateCompromiseText(context),

conditions: this.createCompromiseConditions(context),

responses: this.generateCompromiseResponses(context)

});

return branches;

}

}

## **13. Analytics and Telemetry**

### **13.1 Game Analytics Framework**

interface GameAnalytics {

playerBehavior: {

averageSessionLength: number;

turnsPerSession: number;

favoriteActions: ActionType[];

factionPreferences: string[];

};

gameBalance: {

winRates: Map<string, number>; // Win rates by faction

averageGameLength: number;

commonFailurePoints: TurnNumber[];

resourceUtilization: ResourceUsageStats;

};

systemPerformance: {

averageTurnProcessingTime: number;

aiDecisionTime: number;

databaseQueryPerformance: QueryStats[];

memoryUsage: MemoryStats;

};

}

class AnalyticsCollector {

async recordPlayerAction(action: PlayerAction): Promise<void> {

const event = {

eventType: 'player\_action',

timestamp: new Date(),

playerId: action.playerId,

gameId: action.gameId,

actionType: action.type,

context: this.extractActionContext(action),

sessionId: action.sessionId

};

await this.eventQueue.push(event);

}

async analyzeGameBalance(): Promise<BalanceReport> {

const games = await this.database.getCompletedGames(30); // Last 30 days

const factionWinRates = this.calculateWinRates(games);

const averageGameLength = this.calculateAverageLength(games);

const commonPatterns = this.identifyPatterns(games);

return {

factionWinRates,

averageGameLength,

balanceIssues: this.identifyBalanceIssues(factionWinRates),

recommendations: this.generateBalanceRecommendations(commonPatterns)

};

}

}

### **13.2 Real-time Monitoring**

class GameMonitoringService {

private metrics: Map<string, Metric> = new Map();

recordMetric(name: string, value: number, tags?: Record<string, string>): void {

const metric = this.metrics.get(name) || new Metric(name);

metric.record(value, tags);

this.metrics.set(name, metric);

// Alert on anomalies

if (this.isAnomaly(metric, value)) {

this.alertingService.sendAlert({

level: AlertLevel.WARNING,

metric: name,

value,

threshold: metric.getThreshold(),

timestamp: new Date()

});

}

}

async generateHealthReport(): Promise<HealthReport> {

return {

overall: this.calculateOverallHealth(),

systems: {

database: await this.checkDatabaseHealth(),

gameEngine: this.checkGameEngineHealth(),

aiProcessing: this.checkAIHealth(),

userSessions: this.checkSessionHealth()

},

alerts: this.getActiveAlerts(),

recommendations: this.generateHealthRecommendations()

};

}

}

## **14. Deployment Architecture**

### **14.1 Infrastructure as Code**

# docker-compose.yml for development

version: '3.8'

services:

app:

build: .

ports:

- "3000:3000"

environment:

- NODE\_ENV=development

- DATABASE\_URL=postgresql://user:pass@db:5432/yearsofleaddev

- REDIS\_URL=redis://redis:6379

depends\_on:

- db

- redis

volumes:

- ./src:/app/src

- ./public:/app/public

db:

image: postgres:14

environment:

POSTGRES\_DB: yearsofleaddev

POSTGRES\_USER: user

POSTGRES\_PASSWORD: pass

volumes:

- postgres\_data:/var/lib/postgresql/data

- ./sql/init.sql:/docker-entrypoint-initdb.d/init.sql

ports:

- "5432:5432"

redis:

image: redis:7-alpine

ports:

- "6379:6379"

command: redis-server --appendonly yes

volumes:

- redis\_data:/data

worker:

build: .

command: npm run worker

environment:

- NODE\_ENV=development

- DATABASE\_URL=postgresql://user:pass@db:5432/yearsofleaddev

- REDIS\_URL=redis://redis:6379

depends\_on:

- db

- redis

volumes:

postgres\_data:

redis\_data:

### **14.2 Production Kubernetes Configuration**

# k8s/deployment.yaml

apiVersion: apps/v1

kind: Deployment

metadata:

name: years-of-lead-app

spec:

replicas: 3

selector:

matchLabels:

app: years-of-lead-app

template:

metadata:

labels:

app: years-of-lead-app

spec:

containers:

- name: app

image: yearsofleadgame/app:latest

ports:

- containerPort: 3000

env:

- name: DATABASE\_URL

valueFrom:

secretKeyRef:

name: db-secret

key: url

- name: REDIS\_URL

valueFrom:

secretKeyRef:

name: redis-secret

key: url

resources:

requests:

memory: "256Mi"

cpu: "250m"

limits:

memory: "512Mi"

cpu: "500m"

livenessProbe:

httpGet:

path: /health

port: 3000

initialDelaySeconds: 30

periodSeconds: 10

readinessProbe:

httpGet:

path: /ready

port: 3000

initialDelaySeconds: 5

periodSeconds: 5

## **15. Development Environment Setup**

### **15.1 Development Dependencies**

{

"name": "years-of-lead",

"version": "1.0.0",

"scripts": {

"dev": "next dev",

"build": "next build",

"start": "next start",

"test": "jest",

"test:watch": "jest --watch",

"test:coverage": "jest --coverage",

"lint": "eslint . --ext .ts,.tsx",

"lint:fix": "eslint . --ext .ts,.tsx --fix",

"type-check": "tsc --noEmit",

"db:migrate": "prisma migrate dev",

"db:seed": "ts-node scripts/seed.ts",

"worker": "ts-node src/worker/index.ts"

},

"dependencies": {

"next": "^14.0.0",

"react": "^18.2.0",

"react-dom": "^18.2.0",

"typescript": "^5.0.0",

"@prisma/client": "^5.0.0",

"redis": "^4.6.0",

"ws": "^8.14.0",

"express": "^4.18.0",

"joi": "^17.11.0",

"bcrypt": "^5.1.0",

"jsonwebtoken": "^9.0.0",

"bull": "^4.11.0",

"lodash": "^4.17.0",

"date-fns": "^2.30.0"

},

"devDependencies": {

"@types/node": "^20.0.0",

"@types/react": "^18.2.0",

"@types/ws": "^8.5.0",

"@types/express": "^4.17.0",

"@types/jest": "^29.5.0",

"@types/lodash": "^4.14.0",

"jest": "^29.7.0",

"ts-jest": "^29.1.0",

"eslint": "^8.52.0",

"@typescript-eslint/eslint-plugin": "^6.9.0",

"prettier": "^3.0.0",

"prisma": "^5.0.0",

"ts-node": "^10.9.0",

"@testing-library/react": "^13.4.0",

"@testing-library/jest-dom": "^6.1.0"

}

}

### **15.2 Development Workflow**

// scripts/dev-setup.ts

class DevelopmentSetup {

async initialize(): Promise<void> {

console.log('Setting up Years of Lead development environment...');

// 1. Database setup

await this.setupDatabase();

// 2. Seed initial data

await this.seedTestData();

// 3. Start Redis

await this.startRedis();

// 4. Initialize AI models

await this.initializeAIModels();

console.log('Development environment ready!');

}

private async seedTestData(): Promise<void> {

const testGame = await this.createTestGame();

await this.createTestFactions(testGame.id);

await this.createTestScenarios();

}

private async createTestFactions(gameId: string): Promise<void> {

const factions = [

{

name: "Revolutionary Front",

ideology: IdeologyType.MARXIST,

startingResources: { funds: 10000, members: 8 }

},

{

name: "National Liberation Army",

ideology: IdeologyType.NATIONALIST,

startingResources: { funds: 15000, members: 12 }

},

{

name: "Urban Guerrillas",

ideology: IdeologyType.ANARCHIST,

startingResources: { funds: 8000, members: 6 }

}

];

for (const factionData of factions) {

await this.factionService.create(gameId, factionData);

}

}

}

## **16. Conclusion and Next Steps**

### **16.1 Critical Success Factors**

1. **Start Simple**: Implement the core game loop first before adding complexity
2. **Iterative Testing**: Regular playtesting to validate psychological and balance systems
3. **Modular Architecture**: Ensure each system can be developed and tested independently
4. **Performance Focus**: Monitor and optimize from day one, especially AI processing
5. **Content Pipeline**: Establish efficient systems for generating narrative content

### **16.2 Risk Mitigation**

**Technical Risks**:

* Complexity overwhelming development → Phased approach with clear milestones
* Performance issues with AI processing → Early load testing and optimization
* Database performance with complex queries → Proper indexing and caching strategy

**Design Risks**:

* Player confusion from system complexity → Progressive revelation and excellent UI
* Psychological systems feeling arbitrary → Validation through research and testing
* Balance issues between factions → Extensive analytics and balancing tools

**Content Risks**:

* Narrative generation producing poor content → Human oversight and template quality control
* Historical sensitivity → Careful research and cultural consultation

### **16.3 Success Metrics**

**Technical Metrics**:

* Turn processing time < 2 seconds
* AI decision calculation < 5 seconds
* Support for 1000+ concurrent games
* 99.9% uptime

**Gameplay Metrics**:

* Average session length > 45 minutes
* Player retention > 70% after first week
* Balanced faction win rates (no faction > 60% win rate)
* Positive psychological authenticity ratings from experts

This technical design document provides a comprehensive foundation for developing Years of Lead. The modular architecture allows for incremental development while maintaining the sophisticated interconnected systems that make the concept unique. Focus on getting the core loop working first, then systematically add layers of complexity according to the roadmap.